

YOUNG MEN'S COMMUNICATION WITH PARTNERS
AND CONTRACEPTION USE: A SYSTEMATIC REVIEW

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ABSTRACT

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The rate of adolescent unintended pregnancy in the United States is high compared to other developed countries. While past research and interventions have largely focused on young women, the role of young men in pregnancy prevention has increasingly been recognized. Studies have assessed young men's knowledge and attitudes toward pregnancy prevention as well as their role in male-controlled methods of birth control like condoms or withdrawal. However, less is known about how young men can contribute to or participate in decision-making with female partners about contraception other than condoms. The purpose of this systematic review was to explore how young men communicate with their partners and its impact on contraception use to prevent pregnancy. A systematic review of five databases was conducted to identify English-language articles published from January 1, 2002, through July 7, 2018. The review specifically explored how male partner communication affects female partner use of contraception other than condoms among young men ages 11-24 years. The systematic review explored additional questions, including those pertaining to the timing of partner communication in a relationship, strategies employed by young men, and which dynamics of partner communication are measured in studies. Of the 15 articles identified as exploring areas of communication, five of the articles used quantitative analysis to measure any association between partner communication and contraception use, and three of those produced statistically

significant findings suggesting that communication increases the use of contraception other than condoms. Three qualitative studies provided supporting narratives of how young men have communicated with partners and influenced their contraception use with female partners. The remaining seven articles explored the other research questions of timing, strategies, and dynamics identifying topics, prompts, and communication cues among young men. Measurements of both communication and contraception varied across studies. With the small number of studies identified in this systematic review, it is recommended that future research seek to corroborate the relationship between partner communication and contraception use with more robust and precise measurements of both communication and contraception.

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Chapter I

INTRODUCTION

While recent trends indicate a decline in unintended pregnancy rates, the rate of adolescent unintended pregnancy in the United States is still highest compared to other developed countries (Sedgh, Singh, & Hussain, 2014). According to Finer and Zolna (2016), 45% of pregnancies in the United States are unintended. Furthermore, when estimating for only women who are sexually active, teenagers aged 15-19 have the highest rate of unintended pregnancy among all age groups (Finer, 2010).

Since 1990, the rate of adolescent pregnancy has seen a dramatic decline. Between 1990 and 2000, the rate fell by 27% to 84.5 pregnancies per 1000 women ages 15-19 (Ventura, Abma, Mosher, & Henshaw, 2004). By 2010, the rate fell to 57 pregnancies per 1,000 adolescents, with an estimated annual number of 614,000 pregnancies (Sedgh, Finer, Bankole, Eilers, & Singh, 2015). In 2013, the rate of unintended pregnancy among adolescents decreased to 43 per 1000 adolescents with an estimated annual number of 456,000 pregnancies indicating a 63% decline since 1990 (Kost, Maddow-Zimet, & Apraia, 2017). Data suggest that the declining trends are attributable to improved contraceptive use including condoms, birth control pills, withdrawal and use of multiple methods such as condoms and a hormonal method (Santelli, Lindberg, Finer, & Singh, 2007). Despite the declining the trend, it is still important to address unintended pregnancy as it can have a significant impact on the health and quality of life for young

women, their male partners, and the children of adolescent parents if the pregnancy results in a birth.

Pregnancy prevention efforts among adolescents have predominantly focused on young women. The effects of unintended pregnancy and resulting births on young mothers and children are well documented, ranging from negative health outcomes to behavioral problems (Cheng, Schwarz, Douglas, & Horon, 2009; Kost, Landry, & Darroch, 1998; Logan, Holcombe, Manlove, & Ryan, 2007; Taylor & Cabral, 2002). Additionally, adolescents are also at risk for repeat pregnancy and repeat births, which can further constrain education and undermine employment opportunities (Dee et al., 2017). According to Ventura and Curtin (1999), 30% of adolescent women become pregnant in their first year postpartum. More recently, there has been a decline in repeat teenage births after first teen pregnancy birth but in 2010, there were still 364,859 repeat births representing 18.3% of all teenage births. A large proportion (86%) of these births were second births, while 12.6% were third births (Centers for Disease Control and Prevention [CDC], 2013).

Over the years, however, young men have increasingly been included in the conversation of pregnancy prevention (Coleman & Dennison, 1998; Saewyc, 2012; Sonfield, 2002). In the United States, many young men initiate sexual intercourse at an early age, with 18% having had sexual intercourse by the age of 15. The percentage increases to 44% by age 17, and 69% by age 19 (Martinez & Abma, 2015). Early initiation of sexual intercourse is associated with outcomes such as unintended pregnancy and early fatherhood (Bell, Breland, & Ott, 2013; Heywood, Patrick, Smith, & Pitts, 2015). Men ages 15-24 partner and father the majority of children born to teen mothers (Bell et al., 2018; Males, 1995). In 2014, teen fatherhood occurred at a rate of 11.3/1000 men ages 15-19 years (Hamilton, Martin, Osterman, Curtin, & Matthews, 2015). Also, young men ages 20-24 years fathered more children to teen mothers than young men ages 19 and younger (Elo, King, & Furstenberg, 1999). Studies have also found that younger

sexual activity is associated with multiple partner fertility (Manlove, Logan, Ikramullah, & Holcombe, 2008; Scott, Nicole, Steward-Streng, Manlove, & Moore, 2012). Moreover, past studies have linked early initiation of sexual intercourse with inconsistent or incorrect contraception use. For example, early initiation of sexual intercourse was associated with lower condom use at reported last intercourse (Santelli et al., 1997).

However, according to the National Survey of Family Growth (NSFG), among sexually experienced young men, the reported use of condoms at first sex increased significantly between 2002 to 2006-2010 and remained stable in 2011-2015 following an overall increasing trend of male condom use since the 1980s (Abma & Martinez, 2017). Similarly, male reports of dual method use at first sex (condoms plus a hormonal method) increased between 2002 and 2011-2015 from 10.4% to 18.8%. Male report of dual method use at last sex also increased from 2002 to 2011-2015 from 23.9% to 35% (Abma & Martinez, 2017). Rates of using contraception at first intercourse, last intercourse, or ever using a contraceptive method do not correlate well with consistency.

Of note, among young women in the most recent analysis of the NSFG in 2011-2015, the most commonly reported methods ever used were condoms (97.4%), withdrawal (59.7%), and the hormonal birth control pill (55.5%) (Abma & Martinez, 2017). However, withdrawal and typical use of condoms have the highest contraceptive failure rate at 20% and 13% respectively with typical use of the pill following at 7% (Sundaram et al., 2017). Therefore, while reported use of contraception has increased, young men and women may still be at risk for unintended pregnancy if not used consistently or correctly.

For young men who become fathers due to unintended pregnancies, there is a higher likelihood of decreased educational and employment opportunities and increased risk of similar outcomes for their children (Elfenbein & Felice, 2003; Kane, Morgan, Harris, & Guilkey, 2013; Perper, Peterson, & Manlove, 2010). In addition, children are more likely to have lower cognitive attainment, more behavioral problems, and in the

future, females are more likely to become teenage mothers themselves while males are at higher risk of incarceration (Elfenbein & Felice, 2003; Logan et al., 2007). Research suggests that the cognitive and behavioral development of these children are at risk in part because young, unmarried fathers are less likely to provide financial and time resources (Manlove, Terry-Humen, Ikramullah, & Holcombe, 2008). Furthermore, among a cohort of young men first interviewed in 1997 as part of the National Longitudinal Survey of Youth (NLSY97), 32% had a second child by ages 22 to 24. Another 17% had three or more children by their early 20s (Scott et al., 2012). The young men were between the ages 12 and 17 years in 1997 and are interviewed every two years. Additionally, some studies have found that early initiation of sexual intercourse among young men is linked to multiple partner fertility (Manlove, Logan, et al., 2008).

Unintended pregnancy as well as those unintended pregnancies that result in birth can also be a costly burden to society. According to the National Campaign to Prevent Teen and Unplanned Pregnancy, it was estimated that in 2010 teen pregnancy and childbirth cost at least \$9.4 billion to U.S. taxpayers (Hoffman, 2006). These costs are associated with increased health care and foster care, increased child welfare costs, and increased costs for government prisons because of the higher incarceration rates among children of teenager parents. Further costs are associated with lost tax revenue due to lower educational attainment from young parents (Hoffman, 2006). Thus, unintended pregnancy not only affects individuals and their families but also has an impact on the greater population and society. It is therefore important to explore how young men—not just young women—contribute to preventing teenage pregnancy. To explore young men's role, we conducted a systematic review focused on young men and partner communication about contraception use other than condoms.

Young Men and Pregnancy Prevention

To ground this work, the following sections will discuss how young men are a unique population who can contribute to pregnancy prevention efforts by exploring what is currently known about young men's knowledge and attitudes related to pregnancy prevention. Next it will discuss how combining communication skills with knowledge and attitudes is grounded in theory. The chapter will conclude with the specific research questions this systematic review seeks to answer.

Young Men's Knowledge of Pregnancy Prevention

Among certain populations of young men, studies have shown low levels of knowledge of female methods of contraception compared to condoms or withdrawal. For example, focus group and interview data from a sample of young men and women, ages 18-25 years, found that young men were more familiar and trusting of male-controlled methods like withdrawal and condoms compared to female-controlled methods such as hormonal methods (Carter, Bergdall, Henry-Moss, Hatfield-Timajchy, & Hock-Long, 2012). Young men, like the women in the focus group, expressed concern about how the Depo-Provera shot worked, stated concerns over the diligence required for the hormonal birth control pill, confused emergency contraception pills with medical abortions, and misunderstood the differences between the hormonal patch and other patch treatments.

Additionally, the young men reported fewer sources of information about contraceptive methods leading to feelings of disempowerment in contraceptive decision-making (Carter et al., 2012). Similarly, Merkh, Whittaker, Baker, Hock-Long, and Armstrong (2009) found in interviews with young men of the same age group that they had limited knowledge about contraceptives and sometimes false information such as exaggerated adverse consequences of hormonal methods and doubts of effectiveness.

In studies exploring specific types of contraception, young men were also less knowledgeable. Marshall and Gomez (2015) found that in a sample of 903 men ages

18-25, awareness and perceived knowledge of IUDs was low compared to knowledge of condoms and birth control pills. Increasing knowledge of IUDs and contraceptive implants may be useful as they have lower rates of contraceptive failure compared to the condoms and birth control pills as discussed in the previous section. Similarly, Nguyen and Zaller (2009) found that men were less likely to have knowledge of emergency contraception side effects, while a study by Miller (2011) found that many college males had limited knowledge on how to obtain emergency contraception or that it could be purchased without a prescription. Further, a survey given to 13-25 year olds found that young men were more likely than the women in the study to have the misconception that the emergency contraception pill was an abortifacient (Yen, Parmar, Lin, & Ammerman, 2015). These studies illustrate how low levels of knowledge may be a barrier for young men in contributing and engaging in positive contraceptive support to prevent pregnancy.

Studies also indicate that there are racial disparities in knowledge. For example, in the 2009 National Survey of Reproductive and Contraceptive Knowledge, Hispanic and Black men were less likely than White men to have heard of many contraceptive methods as well as less knowledgeable about the nuances of hormonal methods such as how missed doses can lessen effectiveness (Borrero, Farkas, Dehlendorf, & Rocca, 2013). This suggests the need for targeted interventions for specific populations.

Multiple studies also highlight the impact of knowledge on beliefs. Qualitative studies involving focus groups and interviews among men found that little knowledge of birth control methods led to fear of pregnancy and distrust of women (Johnson & Williams, 2005; Raine et al., 2010). It is interesting to note that some studies found that while some individuals had higher knowledge of contraceptive methods and preventive behaviors, it did not improve reported condom use behaviors among these men (Johnson & Williams, 2005).

Young Men's Attitudes about Pregnancy Prevention

Understanding how young men perceive unintended pregnancy can guide in defining their role in preventing pregnancy. According to Marcell, Raine, and Eyre (2003), in a sample of 32 young men with a mean age of 15.5 years, pregnancy was perceived as a negative event and barrier to reaching future goals. Studies have also found that young men had a strong desire to avoid unintended pregnancy (Frost, Lindberg, & Finer, 2012; Raine et al., 2010). However, negative attitudes toward unintended pregnancy did not always predict reported contraceptive use behaviors such as using condoms or reported partner use of a hormonal method or long-acting reversible contraceptive (LARC) method (Frost et al., 2012; Miller, 2011; Ryan, Franzetta, Manlove, & Holcombe, 2007).

Attitudes regarding young men's roles in pregnancy prevention can vary greatly. For instance, some young men feel that pregnancy prevention is a shared responsibility between men and women (Clark, Zabin, & Hardy, 1984; Gilliam, Woodhams, Sipsma, & Hill, 2017; Ku, Sonenstein, & Pleck, 1994; Marcell et al., 2003). On the other hand, in-depth interviews with men who fathered an unintended pregnancy demonstrated how many men felt they could defer responsibility of contraception to their female partners (Johnson & Williams, 2005). Similarly, just over half of a sample of young men, ages 18-29 years, also felt that women were responsible for pregnancy prevention (Borrero et al., 2013). More recently, however, studies have explored reasons for deferment and found nuances among respondents. For example, interviews among a sample of 58 adult men indicate their recognition of the importance of women's bodily autonomy. While many would prefer to have more agency in reproductive decision-making including birth control, they also did not want to force anything upon their female partners (Hamm et al., 2019). Such findings demonstrate the need for helping young men be involved in pregnancy prevention in ways that are supportive without being coercive.

Past research has also found varying ranges in attitudes toward female contraceptive methods among young men. For instance, one study found that young men felt positively toward emergency contraception as an option when other methods fail (Corbett, Mitchell, Taylor, & Kemppainen, 2006). Additionally, studies have found that young men have generally favorable attitudes about different types of contraception though attitudes varied by type of method. For example, in a sample of African-American men and women, men were more likely to favor condoms and to rate methods such as sterilization and Depo Provera less favorably (Thorburn, 2007). Another study found that young adult White men were more likely to view condoms as “a hassle” compared to young adult Black men (Borrero et al., 2013).

Many interventions have targeted young men’s knowledge and attitudes with improvements in both. Brindis et al. (2005) found that knowledge could be improved in their evaluation of the Male Involvement Program, a community-based program initiated in 1995 targeting young men in California. At baseline, 83% of participants reported knowing where to obtain birth control and this increased significantly to 91% by the end of the program. Furthermore, the evaluation found delays in initiation of sexual intercourse as well as improved knowledge in understanding the risk of pregnancy even at first sex, risks of relying on withdrawal, and awareness of statutory rape laws in California. Similarly, Gottsegen and Philliber’s (2001) evaluation of the Wise Guys program, an intervention targeting 12-14 year old young men in North Carolina, also demonstrated increased knowledge of contraceptives at six months post intervention compared to a control group that did not receive the eight-session intervention.

For attitudes, Brindis et al. (2005) found improved attitudes regarding responsibility and communication with partners to prevent pregnancy. In contrast, Gottsegen and Philliber (2001) did not identify positive effects regarding increased responsibility to prevent pregnancy among young men. While both interventions worked directly with young men, the Male Involvement Program also focused on community

involvement and raising community-wide awareness and support of young men's roles and responsibilities, which may have been a contributing factor to why this intervention was able to change attitudes (Brindis et al., 2005). Also, some intervention evaluations illustrated the ability of school and community-based programs to increase behaviors such as the frequency of discussing birth control and improved communication skills regarding pregnancy prevention (Mosen, Ely, Ho, & Ruch-Ross, 2004; Smith, Weinman, Buzi, & Benton, 2004).

Although interventions can improve knowledge and attitudes, the findings indicate that having more knowledge and positive attitudes do not necessarily translate to higher reported condom and other contraceptive use behaviors. It is important, therefore, to understand how skills such as the ability to communicate with partners can be operationalized, measured, and utilized to prevent unintended pregnancy.

Research Problem and Purpose

The role of young men in pregnancy prevention has not been studied as extensively as the role of young women, and partner communication is an area that needs further exploration. Thus, the purpose of this systematic review was to explore how young men communicate with their partners and its impact on contraception use to prevent pregnancy. The systematic review collates evidence to describe the nature of conversations between young men and their female partners. In understanding how young men communicate with their partners, this systematic review can provide evidence supporting the need to involve young men in teen pregnancy prevention programs. This review was guided using The Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) checklist and flow diagram, which will be described further in Chapter III. The decision to focus on communication is rooted in the theoretical framework below. As discussed in the previous section, knowledge and attitudes among

young men have been widely studied. Therefore, this review focuses on the specific skill set of communication.

Theoretical Framework

The Information-Motivation-Behavioral Skills (IMB) model by Fisher and Fisher (1992) was originally used to identify fundamental determinants of AIDS risk reduction, and this model has since been applied to other safer sex-related behaviors such as condom use. According to this theory, the three main determinants of safe sex-related behavior are information about safer sex, motivation to engage in safer sex behaviors, and behavioral skills such as the “ability to communicate with, and to be appropriately assertive with, a sexual partner”. Drawing upon constructs from other established health promoting theories such as the Theory of Reasoned Action (Ajzen & Fishbein, 1980) and Social Cognitive Theory (Bandura, 1989), the IMB model posits that the three determinants interact with one another and lead to preventive behaviors. For example, motivation to engage in safer sex is drawn from Fishbein and Ajzen’s construct of behavioral intentions, which is based on attitudes toward performing the behavior and subjective norms or perceptions of what others feel is the appropriate behavior (Fisher & Fisher, 1992). Similarly, behavior skills are also influenced by Bandura’s construct of self-efficacy, the self-belief that one has the ability to perform the skills (Fisher & Fisher, 1992). Although developed originally for AIDS prevention, Noar, Carlyle, and Cole (2006) applied the theory in a meta-analysis of sexual communication on condom use. This study will be further discussed in the next chapter.

Many of the studies in the previous discussion focus on knowledge about and attitudes related to pregnancy prevention. However, according to the model, behavioral skills are also necessary, especially when evidence from past studies suggest that knowledge and attitudes do not necessarily predict safer sex behaviors. According to the

IMB model, the ability to communicate with sexual partners is a key component for engaging in safer sex behaviors. Therefore, this systematic review will focus on the role of communication in pregnancy prevention to understand how young men communicate with their female partners, and to see if communication correlates with contraception use other than condoms.

Research Questions

The main research question for this systematic review that guided development of our search strategy is: Does communication between young men and their female sexual partners correlate with reported use of contraceptive methods other than condoms compared to young men who do not communicate with their partners?

Additionally, this review sought to explore and understand the following questions:

1. What topics do young men report discussing with their partners regarding sexual health communication and pregnancy prevention?
2. What strategies do young men use to communicate with their partners?
3. When in the course of a relationship do young men discuss contraception with their partners?
4. What dynamics of communication are measured in studies?

Significance

This systematic review was conducted to examine correlations between communication and contraception use, provide context for how and when these conversations happen, and explore how communication has been measured in past research. As posited by the IMB model, partner communication coupled with knowledge and attitudes can guide young men in their responsible involvement in pregnancy

prevention. Findings from this review can inform future research, interventions, and clinical practices in teaching young men to responsibly communicate with their partners as well as how to measure its effectiveness. Furthermore, by focusing on young men, this systematic review can raise awareness of the impact young men can have on pregnancy prevention. Although past efforts have focused primarily on young women, unintended pregnancy is an issue that affects many people—young mothers, young fathers, their children, their families, and even society as a whole.

Chapter II will review the literature and past studies on couple's research, condom negotiation, and studies focused on young women to provide the contexts within which partner communication takes place. Next, Chapter III will discuss the methodology used in conducting this systematic review and the eligibility criteria for studies to be included in the analysis. Finally Chapter IV will provide results on studies specific to male partner communication, and Chapter V will provide a discussion of the findings.

Chapter II

REVIEW OF THE LITERATURE

Partner communication to promote safer sex behaviors such as contraceptive use other than condoms is an important, tangible way that young men can contribute in preventing unintended pregnancy. As discussed in the previous chapter, theories such as the Information-Motivation-Behavioral Skills (IMB) model support this potential area. While this systematic review has a specific focus on male communication with female sexual partners and reported use of contraception other than condoms, this chapter will explore studies with couples as the unit of analysis, condom negotiation studies, and studies focused on women to illustrate the context, partner dynamics, and nuances of sexual health communication. These studies also provide examples of how communication correlated with reported condom use in studies including those focused on sexually transmitted infections (STI) and HIV prevention. They will also provide examples of how it has correlated with contraception use in female-participant studies. These studies do not fall within the eligibility criteria of this particular systematic review, but strengthen the argument for communication skills. The reasons why they may not fit the criteria include age, condom use, and focusing on young women. The eligibility criteria will be further delineated in Chapter III.

The Dyadic Context of Partner Communication

Sexual health behaviors and decisions occur within dyadic contexts. While young men are the main focus of this systematic review, it is important to explore how their female partners respond to partner communication. The studies in this section focusing on couples and women explore how gender, issues of trust and intimacy, and other factors within a dyadic context affect sexual health decision-making. Also, this section will also explore studies that discuss relationship type and perceived barriers to partner communication as identified in female-participant studies.

Effects of Gender

In a study exploring gender, contraceptive attitudes, and condom negotiation among couples, Vasilenko, Kreager, and Lefkowitz (2015) analyzed couple survey data from 1995-1996 in Wave 2 of the National Longitudinal Study of Adolescent Health (Add Health). In a sample of 488 couples in grades 7-12, the authors found a significant interaction between gender and partner attitudes suggesting that female adolescents are more influenced by their romantic partner's attitudes than male adolescents. According to their findings, male attitudes were more predictive of couple-level condom use. These findings are consistent with other studies in a systematic review exploring gender where young women tend to comply more with their male partners' ideas about sexual behavior (Impett & Peplau, 2003).

A similar association was found in another study exploring general sexual communication among partners compared to contraception-specific communication, its impact on contraceptive use, and predictors of general sexual communication (Widman, Welsh, McNulty, & Little, 2006). The analysis included measures of self-silencing, which was found to influence female sexual communication. Data were collected from the Study of Tennessee Adolescent Romantic Relationships (STARR), and analysis included 73 adolescent male-female couples ages 14-21 who engaged in sexual

intercourse. Regression analysis demonstrated that general sexual communication (freely discussing sex with partner, communicating trying new things sexually, and telling partner sexual fantasies) positively predicted contraception use in both females and males. The study also explored predictors of communication such as self-silencing tendencies. Self-silencing was measured with statements such as “I think it’s better to keep my feelings to myself when they conflict with my partner’s” and results indicated that self-silencing was associated with lower sexual communication openness. Moreover, the interaction of self-silencing and gender indicated that adolescent girls who self-silence and were less assertive with partners and may be adhering to traditional gender roles and avoiding conflict (Widman et al., 2006). Self-silencing did not interact with male sexual communication.

Like the young women reporting self-silencing above, some young women do not communicate with their male partners and perpetuate perceived gender roles. For example, one focus group study assessed condom use among a sample of 40 Latina young women, ages 18-26 years, and found that women perceived their male partners as having the final say in condom use, but that there was also a general lack of communication, especially on topics about contraception and pregnancy intentions (Gilliam, 2007). One woman reported, “I do not openly express myself with my boyfriend, because he thinks everything I say is wrong anyway,” while another young woman reported discussing topics related to condoms as embarrassing (Gilliam, 2007).

Relationship Characteristics and Relationship Types

In addition to these gendered differences to communication, some studies with couples as the unit of analysis also explored characteristics such as trust and intimacy especially when discordance was observed between partners. In an analysis of Wave 3 Add Health (2001-2002), 322 dating couples and 406 cohabitating couples at least 18 years of age were interviewed (Wildsmith, Manlove, & Steward-Streng, 2015). To

measure discordance, each partner was interviewed separately in topics including relationship satisfaction, condoms, hormonal birth control methods, and long acting reversible contraception (LARC). Discordant reports of relationship satisfaction and emotional intimacy were associated with increased condom use. On the other hand, in dating couples when both partners reported high emotional intimacy, lower levels of condom use were reported. The authors inferred that this might be due to more trust and communication. If one partner reported high intimacy than the other, this discordance was associated with higher levels of condom use suggesting poorer negotiation or communication skills. Co-habiting couples were less likely to use condoms, hormonal methods, or LARCs compared to dating couples. The authors inferred this might be due to older age, ambivalence to pregnancy, or readiness to get pregnant (Wildsmith et al., 2015). Further, it suggests more trust and communication between co-habiting partners illustrating how there are different types of partnerships.

Relationship type can also affect how young men participate in pregnancy prevention. Relationship type influenced various pregnancy prevention behaviors according to Merkh et al. (2009), Raine et al. (2010), and Manlove, Ryan, and Franzetta (2003). These studies found that the length of a relationship influences the likelihood of contraceptive use with longer relationships improving communication and decision-making. Similarly, Raine et al. (2010) found that in casual relationships, pregnancy prevention was not discussed despite the desire to avoid pregnancy. However, in committed relationships, men reported negotiating birth control methods with partners, reminding partners to use a method, or going to the clinic to help their female partner choose a method.

Relationship type was further delineated by Catalozzi et al. (2013) into five categories (girlfriend, ex-girlfriend/mother of child, friend with benefits, sex partner, or not ongoing relationship) to assess associations with sexual health behaviors including knowledge of female partner's hormonal contraception use and discussions of hormonal

contraception among men ages 16-36 years. This study found that men describing partners in the categories of “friends with benefits” and “not ongoing relationship” were less likely to know if a female partner was using a hormonal contraceptive method. If the relationship type was “not ongoing,” men were more likely to never speak to their partners about contraception in contrast to men with girlfriends (Catalozzi et al., 2013). This is similar to findings from an analysis of NSFG data assessing men’s ability to report their female sexual partners’ contraceptive method. The study found that the strongest predictor of being *unable* to report the partner’s method was the relationship type such as having a new partner compared to those who had previously had sex with that partner (Garbers et al., 2017).

In addition to relationship type, feelings of responsibility, power and control can affect couples’ contraception decision-making as evidenced in interviews with 22 couples, ages 18-25 years exploring underuse of emergency contraception pills (ECP) (Beaulieu, Kools, Kennedy, & Humphreys, 2011b). Although the majority of participants felt that the responsibility for contraception should be shared, many defaulted to the strongest societal narrative: (hormonal) contraception is ultimately the woman’s decision. In many cases, some young men expressed vulnerability and frustration in their lack of control while young women felt that decision-making was a burden placed on young women. However, many young women also recognized that this “burden” was a source of power and control and young women felt they could make the ultimate decision to use ECP, though many did report male partner support as well. In terms of couple dynamics, the study found that there was a high level of agreement on acceptability of ECP among the 22 couples interviewed with only two couples having conflicting views due to misinformation about ECP. In general, most of the couples felt that the responsibility should be shared (Beaulieu et al., 2011b).

The effect of power dynamics within relationships on condom decision-making have also been examined as in a clinic-based sample of 14-19 year olds in San Francisco,

where authors assessed relative power between partners and categorized power as two types: emotional intimacy power and decision-making power (Tschann, Adler, Millstein, Gurvey, & Ellen, 2002). The first measurement, “emotional intimacy” was measured using items such as “How important is it to you to share your feelings with your partner” or “How much do you need your partner?” A second item included in the analysis was the “global emotional intimacy power” item, which asked the participants how much they and their partners wanted their relationship. A third item, “decision-making power,” was measured using items such as who usually won arguments, who decides when they see each other, and who decides activities. Interview results indicated that compared to measures of emotional intimacy power, measures of decision-making power were not a likely predictor of self-reported condom use. Rather, partners who had greater power in the emotional intimacy domain (such as feeling less emotionally invested in the relationship) were more likely to get their way in negotiating condom use. As such, decision-making skills alone such as being able to win arguments are not the sole factor in getting the safer sex behavioral outcomes of choice such as condom use. Thus, one must also consider relationship power dynamics and emotional intimacy contexts.

Couple data can also highlight how joint misconceptions among couples may affect contraceptive decision-making. In another study exploring the underuse of emergency contraception pills, interviews were conducted with 22 couples where the female was between ages 18-25 years and the male partner was up to age 30 years (Beaulieu, Kools, Kennedy, & Humphreys, 2011a). Each partner was interviewed separately and then together. Analysis of the interviews found that the participants had a range of meanings attributed to ECP with many based on incomplete information or misconceptions, and these provided the basis for couples’ decision making. For example, some couples reported the belief that using ECP was morally wrong because it was like abortion or “killing.” Others attributed the need for it to lapses of judgment while others had more forgiving views for the need for it. There were also several couples reporting

misconceptions about ECP saying it was dangerous for the young woman or ineffective. The authors stated that these concerns potentially prevent or delay the use of emergency contraception (Beaulieu et al., 2011a).

Perceived Barriers to Communication

An additional layer to the context of decision-making within a partnership is perceived barriers to communication, which has been explored in many studies focused on young women. For instance, discussing sexual health can be an uncomfortable topic for many couples. Interviews among women, ages 18-24 years, revealed that asking about sexual history can be an uncomfortable topic (Bolton, McKay, & Schneider, 2010). This is consistent with findings from a microbicide acceptability study among 14-21 year old women. Interviews at baseline and three months found some participants reported feeling uncomfortable discussing the use of the product while another reported not discussing with the male sexual partner at all because of the uncertainty of his reaction (Zubowicz, Oakes, Short, Perfect, & Succop, 2006). Similarly, quantitative data from 904 women, ages 14-26 years, in Texas revealed that many lacked assertiveness with male sexual partners because of their beliefs about their rights. For instance, 15-19% of the participants believed that they never have the right to make contraception decisions, discuss sexual preferences, or ask their partners about recent STD examinations (Rickert, Sanghvi, & Wiemann, 2002).

Women's assumptions about their male sexual partners, such as beliefs about partner monogamy, may also act as a barrier to partner communication. Data from interviews with 13 Canadian young women, ages 18-24 years, found that many chose to use condoms at the start of a relationship but discontinued their methods over time based on unconfirmed assumptions of monogamy that they felt did not need discussion. Other women in the study cited trusting their partners as motivation to transition from condoms to oral contraceptives placing themselves at risk for STIs (Bolton et al., 2010). Rather

than having information directly communicated to them by their partners, many young women made decisions based on assumptions.

A study of 375 African-Americans, ages 14-18 years, found similar results, stating that less frequent communication with their partners about sexual health and the belief that they were in a mutually monogamous relationship predicted inconsistent contraceptive use (Davies et al., 2006). This is consistent with findings from interviews of women, ages 18-25 years, in the Midwest that found that women reported that they discontinued condom use over a period of “nonverbal communication and sporadic use” (Mullinax et al., 2016). In other words, while some young women and their partners start the relationship using condoms, over time they become less consistent but do not have a deliberate discussion about when they want to stop using condoms.

Lack of appropriate knowledge or understanding the need for pregnancy prevention among male partners can be another barrier. One study, for instance, by Kottke et al. (2013) found among a sample of 320 African American young women, ages 14-19 years, 40% of the women that discussed topics “like birth control, STDs, and pregnancy” with their most recent partner experienced a negative response. Negative responses included some male sexual partners accusing female partners of cheating or seeing other partners. In some cases, this led to threats or actual violence. These negative reactions were associated with less use of contraception other than condoms compared to women who did not receive a negative response from their partners (Kottke et al., 2013).

Moreover, women’s experiences of reproductive coercion are associated with limited partner communication and other negative outcomes. According to Northridge, Silver, Talib, and Coupey (2017), reproductive coercion includes pregnancy pressure from male sexual partners as well as contraceptive sabotage or interfering with birth control methods such as throwing out birth control pills or removing a condom without the female sexual partner’s consent. In a sample of sexually active girls, ages 14-17, in a high-poverty community, Northridge et al. found that nearly 20% of the young women

experienced sexual coercion. Other studies have found that sexual coercion is associated with higher risk of intimate partner violence and less comfort communicating with partners (Miller et al., 2007; Northridge et al., 2017; Teitelman, Tennille, Bohinski, Jemmott, & Jemmott, 2011).

These barriers, especially contraceptive sabotage, suggest the urgent need to explore young men's attitudes further in pregnancy prevention as there are many nuance related to gender roles, perceptions of masculinity, and issues of power and control in relationships that can influence how men participate in pregnancy prevention. The following section will discuss how, on the other hand, young men can also be sources of support, especially through communication. While the barriers above may suggest limiting male involvement in pregnancy prevention and contraceptive decision-making, young men can have a wide range of behaviors and attitudes. Compared to the examples of reproductive coercion discussed above, many young men desire partner characteristics of closeness, trust, and protection and caretaking with their female partners (Bell, Rosenberger, & Ott, 2015). The following section will explore studies that highlight effective partner communication as well as how studies with young women describe communication with male sexual partners as a form of partner support.

Communication Styles and Strategies

Across relationship types, young men and women have various ways of communicating about sexual health and contraception. This section will explore effective communication strategies and nuances identified in couple studies, condom negotiation studies, and female-participant only studies. Lastly, it will discuss studies where young women identify communication as a form of support in contraception decision-making.

Couple studies provide examples of different communication styles and strategies. One study, for example, was conducted to explore female condom acceptability using

semi-structured in-depth interviews with 26 women, ages 18-34 years, and their male partners (Penman-Aguilar et al., 2002). The study focused on how women promoted use of the female condom and how their male partners responded. The interviews found that combining multiple strategies to present and introduce the female condom were effective. These strategies included using study materials such as a testimonial-style video as well as persuasive arguments like discussing the novelty of trying something new, the importance of protection, the more natural feeling compared to male condoms, and the reduced amount of work on the male's part when using the female condom. The study found that about half of the men were reluctant initially, but that this first reaction did not predict actual use of the female condom. Some men were more willing after trying the female condom and some decided that they did not like it. In any case, the study did find that women were able to effectively promote the female condom to their partners suggesting that combining different methods of communication can be effective (Penman-Aguilar et al., 2002).

Assertive communication was also found to be a useful style of communication as evidenced by another study assessing heterosexual couples' data among 32 couples with at least one partner between 16 and 21 years of age in New York City (Schmid, Leonard, Ritchie, & Gwadz, 2015). Couples were seeking services at a community-based organization for youth at risk of school dropout, homelessness, substance abuse, and mental health issues. Using a cross-sectional design, the study first surveyed the participants regarding their sexual behaviors including self-reported condom use and subsequently video-taped the couples discussing why they or other couples they know should or should not use condoms. Participants rated their own assertiveness after reviewing video footage and results found that self-reported moderate assertiveness was positively correlated between both partners and self-reported condom use. High and very low assertiveness was associated with lower self-reported condom use. This suggests the

need for couples to find the right balance of communication appropriate for their partnership (Schmid et al., 2015).

Within dyads, timing and frequency of discussion is also important. In another study consisting of 83 couples, ages 15-18 years, separate interviews for each partner were conducted to explore the content, frequency, and timing of couple communication about birth control (Polit-O'Hara & Kahn, 1985). Many couples reported that conversations of birth control did take place but after first intercourse and that both male and female partners were equally likely to initiate the conversation. The most common topic was whether or not the female partner should go on the pill. Other common topics included discussions of the pill's side effects, other contraceptive options such as pulling out, reminders to use a method (condoms or the pill), and dissatisfaction with their current method of contraception. While most of the couples felt that they had discussed birth control "just the right amount," other couples felt that more discussion was needed because of a lack of action or decision. One interesting finding was that when the researcher paired the interviews, the quality of communication between partners was lower than individual reporting of it, suggesting discrepancies in how partners perceive each other's self-reported openness and communicativeness. Quality was operationalized as the "degree to which one partner appeared to be receiving the information the other person purportedly was sending" and was rated using a five-point scale from 1 (poor) to 5 (excellent) (Polit-O'Hara & Kahn, 1985). The study also found that the higher the quality of communication between partners, the better the protection against pregnancy (Polit-O'Hara & Kahn, 1985). It is important to note, however, that this study took place over 30 years ago.

Partner communication strategies may be a technique for avoidance of condom use as well. For example, one study was conducted to see which particular strategies for condom negotiation were most effective for obtaining or avoiding condom use among Latino youth in interviews among young men and women, ages 16-22 years (Tschann,

Flores, de Groat, Deardorff, & Wibbelsman, 2010). Strategies to obtain condom use were delineated into three factors. Risk information/request was the first factor and included discussing risk of pregnancy, not wanting a baby, discussing STDs, or asking if the partner had a condom. The second factor under strategies to obtain condom use included direct verbal or direct nonverbal communication such as pulling a condom out, stating that one would get a condom, handing a condom to a partner, or putting a condom on without saying anything. The third factor was insisting on condom use and included asking the partner if they wanted to use a condom. The study found that discussing risk information, as well as using direct verbal or nonverbal forms of communication were the most effective strategies resulting in successful self-reported condom use in the last month. Conversely, one of the study's measures of condom avoidance strategy labeled "ignoring condom use," which was defined in the study as "just kept having sex" or "told partner not to stop" was associated with less condom use. Other types of condom avoidance strategies included emotional coercion such as getting upset at a partner's suggestion for condom use or acting insulted at the suggestion. They also included expressing their dislike of condoms or "seduction" such as using sweet-talks to avoid condom use. There were no differences by gender in use of risk information, emotional coercion, seduction, or stating dislike of condoms. However, young men used direct verbal and direct nonverbal communication more than young women, and young women ignored condom use more often than young men (Tschann et al., 2010). This study illustrates how different forms of communication and different goals of communication create another layer of complexity for youth to navigate. It is important to understand the different forms of partner communication in order to better equip adolescents to communicate and negotiate for safer sex behaviors.

Many studies conducted with young women have identified various styles and strategies of communication that play out as supportive behaviors. For instance, 110 13-17 year old young women were followed for one year after a clinic-based intervention.

Factors that predicted more consistent hormonal contraceptive use were participants having the same partner over time, perceived partner support for birth control use, and earlier communication with partners about sexual risk (Kenyon, Sieving, Jerstad, Pettingell, & Skay, 2010). In this study, communication about sexual risk was assessed by participant reports of when they talked to their most recent sex partner about timing of intercourse, use of condoms or other contraception, pregnancy prevention, STDs, and HIV/AIDS. Similarly, in a study assessing women, ages 18-44 years, the authors found that factors significantly associated with consistent self-reported condom use were perceived male sexual partner's positive opinions of the method in addition to the woman's own positive attitude toward dual method use (Sangi-Haghepykar, Posner, & Poindexter, 2005).

According to these female-based studies, there are many ways young men can communicate their support for their female sexual partners such as positive reinforcement for clinic visits and obtaining contraception. In a study assessing sources of support for 399 female adolescents, ages 13-19 years, going to clinics for contraception, more than 75% of the teenagers reported their partner was aware of the clinic visit and more than 90% said these partners were supportive. The study found that partner support was also associated with type of contraception used, with adolescents using hormonal methods reporting that their mother or male partner was aware and supportive of the visit compared to those reporting only condoms use (Harper, Callegari, Raine, Blum, & Darney, 2004).

Similarly, a sample of 40 African American adolescent mothers, ages 14-18 years, reported a range of support from male sexual partners in qualitative interviews including affirmative support of a female's contraceptive choice, initiation of discussions for ambivalent adolescent mothers, advocacy for long acting contraceptives, and reminders for method continuation (Lewis, Martins, & Gilliam, 2012). The young women in the study also reported that these male partners were vocal in discussions of potential side

effects and misconceptions of birth control, which could have been used to discourage contraceptive use.

As discussed earlier, male sexual partner knowledge is instrumental in their ability to communicate and provide support to their partners. In-depth interviews with 18 women, ages 15-21 years, explored their experiences using the hormonal patch. Participants felt that their male partners were not sufficiently knowledgeable to help in contraceptive decision-making, but felt that their partner support was useful for method continuation (Sucato, Bhatt, Murray, & Ott, 2011). On the other hand, in a sample of 17 African-American women, ages 19-26 years, many of the women were unaware of different types of sexual risk and felt “lucky” because their male partners were the ones encouraging contraceptive use because they had more knowledge than their female partners (Martyn, Hutchinson, & Martin, 2002).

Men who communicate support to their female sexual partners are therefore influential in decision-making from initiating a method to continuing a method.

Communication, Condoms, and Contraception Use

This section reviews studies that demonstrate associations between communication and condom use (including studies focused on STI prevention) and young women’s use of contraception (without data from young men). Measurements of communication will also be discussed.

Associations between Communication and Condom Use

As discussed briefly in Chapter I, Noar et al. (2006) conducted a meta-analysis of the relationship between communication and reported condom use. Their sample included 55 articles with publications dates ranging from 1989 to 2003 and their analysis include three codes of characteristics from the studies reviewed: topic of communication,

which included condom use, sexual history, and/or general safe sex; operationalization, which determined if communication was measured as self-efficacy, intention, and past behaviors related to condoms; and focus, which assessed whether the communication between partners was grouped as either an informational exchange or a persuasion attempt. Overall implications of this meta-analysis indicated that communication does have a strong impact on reported condom use. The strongest relationships were found in studies that assessed communication about condoms specifically as well as studies assessing actual communication behaviors rather than self-efficacy and intentions. However, the generalizability of the review to a population of young men is not direct because the 55 studies in this analysis included males and females; multiple age groups, heterosexual and homosexual individuals; and multiple settings (Noar et al., 2006).

In 2014, a meta-analysis focusing on sexual health communication and condom use specifically among adolescents had similar findings (Widman, Noar, Choukas-Bradley, & Francis, 2014). The outcome measures included in the analysis were condom use and unprotected sex and excluded studies focused on other contraception use. Like the meta-analysis above, the authors found that overall sexual communication between partners has a statistically significant association with condom use with strong effects found in communication specific to the topics of condom use. In terms of how to measure and operationalize communication, strongest effects were found in studies that assessed communication as a practice or self-efficacy compared to studies that measured intentions, fears or concerns, or comfort with communication. It is interesting to note that, in most of the studies, sexual communication was assessed using a single measure as these studies also focused on a variety of other exposures that could affect condom use.

Additionally, there have been more studies since the meta-analysis above that have focused specifically on condom negotiation among adolescents. In a cross-sectional study assessing young Latinos ages 18-25 years, participants were interviewed and asked to recall how many times they had vaginal or anal sex in the last three months as well as

how many times they used a condom during that time. Additionally, the study explored levels of relationship power and control among the individuals including “participation in sexual decision-making” as a measure of power. The study found that higher condom self-efficacy (such as the self-efficacy of being able to correctly use a condom and being able to use one every time they had sex) and more participation in sexual decision-making increased the odds of reporting consistent condom use among both men and women (Stokes, Harvey, & Warren, 2016). Measures of sexual decision-making included participants’ ratings of how much they take part in condom use decisions and whether or not to have sex. Participation in sexual decision-making was associated with increased condom use for both men and women suggesting the need for both partners to be involved in decisions of safer sex behaviors.

Similarly, in a younger school-based population of youth ages 12-15 years, sexual communication with dating partners, parents, and closer friends was assessed. Sexual health communication included discussions of condom use, other forms of birth control, STDs, HIV/AIDS, pregnancy, and delaying sexual activity/abstinence. The rationale for using a younger sample was to explore developmentally normative timelines for communication about sexual issues among youth who may not yet be ready as well those who have already initiated or may be contemplating sexual activity. Of the 868 students included in the final sample, 53 reported being sexually active. Among this group, the adolescents who reported more sexual health topics discussed also reported more frequent condom use or dual methods use at first intercourse (Widman, Choukas-Bradley, Helms, Golin, & Prinstein, 2014).

Likewise, in two southeastern cities in the United States, 839 young women ages 14-30 years participated in a longitudinal survey assessing contraception use in the last 30 days using five categories: no method, condoms alone, withdrawal alone, female method alone (sterilization, implants, IUD, injectables, oral contraceptives or barrier methods other than condoms), and dual method use (condoms plus a female method).

These were measured against three variables assessing relationship quality. The first was communication defined as the extent to which the woman talked to her partner about things that “really mattered to her” with response options “a lot,” “some,” “a little,” or “not at all.” The other two variables assessed were relationship satisfaction and exclusivity. Out of three relationship variables assessed (communication, relationship satisfaction, and exclusivity), the results illustrated that communication was the only variable associated with self-reported condom use. Women with better partner communication were more likely to report using condoms in the last 30 days (Wilson & Koo, 2008).

Finally, a relatively unexplored area is the use of technology with adolescent partner communication and its effect on condom use. In a sample of 176 youth in grades 11 and 12, use of private technology such as text messaging, Facebook, and Snapchat was assessed. Participants were asked if they use private technology to communicate with dating partners about condom use, other birth control use, STIs, HIV/AIDS, risk of pregnancy, and sexual limits. Condom use was assessed as either being used every time or not every time. According to the study findings, the odds of consistent condom use increased among youth who used technology to discuss condoms, birth control, pregnancy, or sexual limits (Widman, Nesi, Choukas-Bradley, & Prinstein, 2014).

Despite the nuances and various circumstances within which partner communication on condom use takes place, past research illustrates that communication correlates with condom use. The correlation exists across various age groups, and is apparent in studies assessing STI prevention as well as pregnancy prevention. With this knowledge, researchers can apply these same ideas to contraceptive use other than condoms as these studies support the same ideas of information, motivation, and communication skills working toward a safer sex behavior, which in this case is contraception use. The following section explores what past studies have revealed about

partner communication from young women and their contraception use other than condoms.

Communication in Studies of Female Participants

The evidence in the last section described how adolescents who communicate with their partners about condom use increased the likelihood of self-reported condom use. This section will discuss studies that illustrate how partner communication increases the likelihood of contraception use other than condoms in young and adult women. This will further build the case on the importance of partner communication and why we need to understand it from the male perspective especially because these methods may not be “male-controlled” methods such as condoms and withdrawal. This section will discuss findings from studies of women and how communication is measured and correlated with contraceptive use.

One such study explored predictors of contraception use in a sample of 599 women, ages 18-30 years. Communication was measured using two questions: “Would you say you have talked with your last sexual partner about birth control never, once, or several times?” and “Would you say you have talked with your best friend about birth control never, once, or several times?” The study found that communication with their last sexual partner was associated with increased intentions to use contraception the next time they had sexual intercourse (Campo, Askelson, Spies, & Losch, 2012). Due to the cross-sectional nature of the study, the authors did not elaborate on the types of communication utilized but stressed the need for effective communication interventions. Furthermore, the measure of contraception use was of intentions and not actual behaviors.

Another study that illustrated the effects of partner communication on use of a wide range of contraceptive methods took place in Chicago with 267 women ages 13 to 25 years. Surveys were administered to describe cultural factors that influenced the primary outcome variable of having ever used a very effective contraception such as long

acting reversible contraception (LARC) including an intrauterine device or contraceptive implant, or hormonal injection (Gilliam, Neustadt, Whitaker, & Kozloski, 2010). It also included oral contraceptive pills and the contraceptive patch. The data did not include the contraceptive ring as it was not yet available for use when the data for this study was collected in 2003-2005. Participants were asked to respond to the statement “I talked to my partner about birth control before sex” using a 5-point response scale ranging from always to never. Partner communication was significantly associated with reported use of very effective contraception use among Latina adolescents compared to those who did not communicate with their partners (Gilliam et al., 2010).

North Clarke et al. (2016) also examined different factors ranging from social factors and risk behaviors; past sexual and contraceptive experiences; characteristics of current or most recent sexual relationships, and perception or worries about sexual health. These factors were analyzed to examine associations with contraceptive use defined in this study as condoms, hormonal methods, and intrauterine devices. The study also assessed if the participant was involved in sexual health decisions (alone or equally with the most recent partner) or if the partner was the primary decision-maker on topics of pregnancy, birth control, condoms, and STI testing. Based in Atlanta, this study focused on sexually active African-American women, ages 14-19 years, and found that partner discussions specifically about condoms among the younger group of 14-16 year old women increased the odds of contraceptive use. On the other hand, among the 17-19 year old women, discussions about birth control specifically increased the odds of contraception use while discussing whether to get pregnant with their partner decreased the odds of contraception use (North Clarke et al., 2016). The data indicate how the range of topics of sexual health communication may differ in topics and outcomes of contraception decision-making.

While the studies above discuss a wide range of contraceptive methods as potential outcomes, others focus on specific methods. One study assessed male partner influence

on emergency contraception obtainment in a clinic-based sample of sexually active young women, ages 15-30 years in San Francisco. It assessed power dynamics, pregnancy desires, and quality of relationship measured using a 10-item scale including communication measures: “Partner listens to me,” “I can tell my partner my feelings without getting defensive,” and other measures about seriousness, feeling distant, and feeling neglect. Additionally, the scale included communication measures specific to sex such as “I talked about contraception with my partner” as well as measures about comfort talking to partners and partner willingness to talk. Survey data from 497 women found that male decision-making and male desire to avoid pregnancy increased the odds of the female partner using emergency contraception. While not directly a measure of communication (their measures for communication alone did not show an association with emergency contraception use), it is interesting to note that young men can be influential in the use of some methods like emergency contraception. Although not indicative of balanced decision-making, it shows that it is possible for men to communicate their desires related to pregnancy intentions and that they have the ability to make decisions or influence contraception use (Harper, Minnis, & Padian, 2003).

Similarly, Gilliam and Hernandez (2007) explored individual factors (including age, attitudes, belief and knowledge) as well as social variables related to parents, culture, and partners and its effect specifically on using withdrawal as a method for birth control in a sample of 273 13-25 year old Latinas in Chicago. Partner communication variables included asking participants if they talked to their partners about waiting to have sex or had told their partner they would not have sex without a condom (Gilliam & Hernandez, 2007). Interviews with the women revealed that communicating with their partners about waiting to have sex increased the women’s willingness to use withdrawal as a method. It is also important to note, however, that other reasons for willingness to use withdrawal included having less knowledge about contraception illustrating again how concepts from the IMB model like information and communication interact.

Furthermore, in a New York City-based study assessing patterns of hormonal birth control pill discontinuation and partner influence, the authors suggest that partner communication may have been a contributing factor to continuation on the pill amongst women, ages 13-46 years (Kerns, Westhoff, Morroni, & Murphy, 2003). More specifically, the study assessed the variable, “partner knows of planned pill use,” and posits in their discussion that the female partner either explicitly told the male of pill use or that the male partner had an implicit understanding. In any case, the authors state that this is indicative of some degree of communication. Thus, male awareness of planned pill use was a marker for communication in a relationship. The study found that women whose male partners were unaware of their birth control pill plans had higher odds of discontinuing use of the pill from baseline to after the first month of use.

Additionally, some studies build upon partner communication on contraception use by assessing topics discussed. For example, in a sample of 253 sexually active 13-17 year old female adolescents, cross-sectional survey data assessed condom use consistency and hormonal contraceptive use consistency with independent variables measuring the degree to which participants and their most recent sex partners used contraceptive-specific communication (such as “When did you and your partner talk about using condoms?”) and general sexual communication (such as “When did you and your partner talk about when you should have sex for the first time?”). The study found that partner communication specific to contraception use was associated with reported consistency in hormonal contraceptive use (Johnson, Sieving, Pettingell, & McRee, 2015). General sexual communication did not show an association with reported hormonal contraceptive use. Furthermore, the impact of partner communication was greater in steady versus casual partnerships (Johnson et al., 2015). Contraceptive-specific communication was more helpful than general communication.

Partner communication in the studies above affects female contraception use with both general and specific communication and across various contraceptive methods.

Furthermore, the studies above illustrate the many ways young men can contribute by utilizing various communication strategies and showing support to their female partners in pregnancy prevention. While these studies about male partner communication influencing contraception use other than condoms are informative, there is some bias as the results come solely from female participants. We therefore need to explore studies focused on communication among young men and their outcomes around contraception in pregnancy prevention. Male-focused pregnancy prevention studies are not as plentiful as those focused on young women. Thus, this paper's systematic review should prove useful in gathering evidence to build upon the studies above and further emphasize the need for partner communication.

Why a Systematic Review?

Systematic reviews are reproducible processes with explicit methods conducted to identify evidence to answer specific research questions with clearly stated objectives and eligibility criteria (Higgins, Churchill, Chandler, & Cumpston, 2017; Moher, Liberati, Tetzlaff, & Altman, 2009). Such reviews collect and analyze data from the studies included and provide a clear presentation and synthesis of the findings. By identifying all related studies and evidence, the information gathered can provide guidance for health care providers, policy makers, researchers, and editors of empirical studies (Liberati et al., 2009). A systematic review of male partner communication and contraception use will build upon what has been learned from the studies that have been reviewed here.

Guidelines for producing clear and transparent systematic reviews are frequently updated to create improvements in standards of reporting. For example, the Quality Reporting of Meta-analysis (QUOROM) statement guidelines published in the 1990s were developed to provide recommendations for reporting meta-analyses (Moher et al., 1999). These guidelines were subsequently revised into PRISMA (Preferred Reporting

Items for Systematic reviews and Meta-Analysis), which includes guidelines for both systematic reviews and meta-analyses (Moher et al., 2009). PRISMA also adopts definitions from the Cochrane Collaboration, an initiative formed in the 1990s to promote standards for quality conduct, reporting, and review of studies (Higgins et al., 2017).

The Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) checklist and flow diagram guided the processes used in this systematic review. Developed by 29 review authors, methodologists and other experts, the PRISMA checklist and flow diagram provide a foundation for creating transparency and clarity, eligibility criteria, search terms, and processes for selecting and analyzing articles relevant to the topic of interest (Moher et al., 2009).

Because pregnancy prevention has primarily focused on young women, a systematic review for understanding communication and contraception use in studies with young male subjects can collate current evidence and subsequently guide future research and interventions on pregnancy prevention among adolescents.

Chapter III

METHOD

The purpose of the systematic review was to assess whether or not young men's communication with their female sexual partners is associated with their reported use of contraception methods other than condoms. The Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guided the methods of this systematic review. The methods for this systematic review were organized by regular meetings with a team of researchers working on a male teen pregnancy prevention intervention at Columbia University Medical Center. These methods were also guided by PRISMA, input from a health sciences informationist at Hammer Health Sciences Library at Columbia University, and the dissertation research sponsor at Teachers College, Columbia University. The systematic review protocol was not registered.

Overview of the Research Design

Eligibility Criteria

As recommended by the PRISMA guidelines, the research question and eligibility criteria were determined using the PICOS Approach (Liberati et al., 2009). PICOS is an acronym that breaks down the research question by establishing five components: population of interest (P), interventions or exposure (I), the comparator group (C), the outcome or endpoints (O), and the chosen study design (S). In addition to those components, this systematic review included additional components of time (T) and

setting (S). These components were incorporated to create a modified PICOTS table (see Table 1). The table elaborates eligibility criteria by breaking down categories for inclusion and exclusion criteria for each component and includes keywords and indexing terms to help guide in the creation of search terms.

The creation of the PICOTS table was an iterative process guided by previously identified articles from scoping searches of PubMed and hand-searched articles from references. Consultations with an informationist from the health sciences library, dissertation research sponsor, and the intervention team also guided the development of the PICOTS table and search terms.

Types of participants. This review included studies conducted with young men between the ages of 11 and 24 years to include all teenagers, and 24 years as the upper limit because as discussed earlier, young men ages 20-24 years father more children to teenage mothers than those 19 years and younger. Articles included may have had young women in the analysis, but were excluded if male results were not reported separately.

Types of exposure. The intervention or exposure of interest is communication with partners. More specifically, the review focused on sexual health communication with female sexual partners pertaining to pregnancy prevention or contraceptive decision-making. Within the intervention and exposure category, articles were excluded if they focused only on condom negotiation or only on STI and HIV prevention. Articles were also excluded if their exposure of interest is communication with parents, providers, and peers. The comparators were young men who do not communicate with their partners.

Types of outcome measures. The types of outcome measures included contraception use behaviors. Specifically, the review was conducted to determine any associations between communication and its impact on female partners starting a method of contraception, staying on a method of contraception, and using a method of contraception. Again, these methods include all but condom use alone. Dual method use

Table 1. PICOTS Table

PICOTS Element	Inclusion	Exclusion	Search Terms	Articles
Population	Adolescent or Young Adult (11-24) Male	Females Males < 11 or > 24 Any study that does not report male results separately	Keywords: Adolescence Adolescents Youth Young Adult Young Men Males Men MeSH: Adolescents Young Adults Males	Ryan Amialchuk Widman Stone Manlove
Intervention/Exposure	Sexual health communication with partners Communication with partners regarding pregnancy prevention Contraceptive decision-making with partners Discussion of contraception with partners before sex	Studies focused on condom negotiation only Studies focusing on communication in STI/HIV prevention only Parent communication only Providers communication only Peers communication only	Keywords: Romantic partner Sexual partner Romantic relationships Sexual communication MeSH: Communication Decision-making Negotiating	Amialchuk Widman Stone

Table 1 (continued)

PICOTS Element	Inclusion	Exclusion	Search Terms	Articles
Comparator	Males who do not communicate with their partners			
Outcome	<p>Female partner starting a method of contraception</p> <p>Female partner staying on a method of contraception</p> <p>Female partner use of contraception at last sex</p> <p>Dual methods of contraception (condom plus hormonal) at last sex</p> <p>Pregnancy prevention</p> <p>Unintended pregnancy</p> <p>Fatherhood</p>	<p>Any study that focuses on condom use only</p> <p>Knowledge as main outcome</p> <p>Attitudes as main outcome</p>	<p>Keywords: Contraception Contraceptive Contraception Consistency Birth Control Sexual risk Sexual behavior Dual method Family planning</p> <p>Mesh: Contraception</p> <ul style="list-style-type: none"> • Contraception Behaviors • Contraceptive Behavior • Contraceptive Behaviors • Contraceptive Usage • Contraceptive Method Switching 	<p>Ryan Amialchuk Widman Stone Manlove</p>

Table 1 (continued)

PICOTS Element	Inclusion	Exclusion	Search Terms	Articles
Timing	2002- present			
Setting	United States Countries that fall in the World Bank's high-income economies category Published in English	Studies not published in English Studies conducted in countries that do not fall in the World Bank's high-income economies category		
Study Design	Surveys and Questionnaires; Qualitative Studies RCTs			

is acceptable (condom plus a hormonal method or copper IUD). Articles assessing only outcomes of knowledge and attitude change were not included in the final analysis.

While searching for articles, there was a low amount of articles focused on male communication with female partners as the intervention/exposure and contraception use as an outcome measure. Thus, the outcome measures were modified to include predictors of male partner communication as they provided insight on measurement of communication.

Additional criteria. Lastly, the PICOTS table includes parameters of timing, setting, and study design. The last search was run on July 7, 2018, and included studies published from January 1, 2002, to July 7, 2018, to be inclusive of the year that the National Survey for Family Growth (NSFG), a multistage nationally representative sample survey, first included an independent sample of men. The NSFG includes data for household members, ages 15-44 years, and collects information on families, marriage, pregnancy, contraception and other reproductive health topics.

The setting criteria include articles that were published in the United States and published in English. Articles from other countries will be included if published in English and if the country falls under the category of “High-Income Economies” according to The World Bank. Acceptable study designs will include both qualitative and quantitative studies with cross-sectional, cohort, or randomized control trial designs.

Information Sources

Studies were identified by searching electronic databases, scanning references of articles, and consulting experts in the field. As previously discussed, the time limit applied to these searches in each database was 2002 to present. The five databases included PubMed, POPLINE, CINAHL, PsycINFO, and EMBASE. The last search was conducted on July 7, 2018.

Search Terms

After finalizing the eligibility criteria in the PICOTS table, the creation of search terms, an iterative process, involved using keywords identified in the table in scoping searches on PubMed. If the yield of the searches was too broad or narrow, the search terms were altered. Keywords included terms for population, exposure, and outcomes of interest. For example, the search strategy for PubMed included Boolean searches using keywords including “adolescent” or “male” or “teenager” and “contraception” and “communication” or “decision-making” or “negotiating.” During this scoping search, the results yielded an excess of articles that did not meet the eligibility criteria so the search was modified to include “Relationship” or “partner” in the title and abstracts. Using the results from this scoping search, the search strategies were modified by incorporating variations of the keywords and medical subject headings (MeSH terms). For example, the search included any articles using a variation of communication such as “communicate” and “communicating.” Similarly, modifications were used for the different databases based on how their articles are indexed. Below are the search terms used for PubMed:

1. ("Adolescent"[Mesh] OR "Adolescents" OR "Teens" OR "Teen" OR "Teenagers" OR "Teenager" OR "Youth" OR "Youths" OR "Adolescence" OR "Male Adolescent" OR "Male Adolescents"))
2. AND (((("Contraception"[Mesh]) OR "Contraception Behavior"[Mesh])) OR contracept* [tiab]))
3. AND ((((((("Communication"[Mesh]) OR "Decision Making"[Mesh]) OR "Negotiating"[Mesh]) OR communicat* [tiab]) OR decision making [tiab]) OR negotiat* [tiab]))))
4. AND ((relationship* [tiab]) OR partner [tiab])

The date range of studies was January 2002-July 2018.

Study Selection

Search results from the five databases were imported into the citation manager, EndNote. One hand-searched article was also included. Duplicates were removed electronically using EndNote and the remaining articles' abstracts were reviewed. Eligibility assessment was conducted using the PICOTS table as a guide. Reasons for exclusion were conducted sequentially based on the PICOTS table where abstracts that clearly did not fit particular criteria were removed and categorized by the reasons for which they do not qualify. If eligibility was unclear by abstract, a full review of the article was conducted. Articles that did not meet eligibility were eliminated and the reason for eliminating each study was specified. This review utilized the PRISMA flow diagram to summarize the search process and study selection.

Data Collection Process

Data were extracted from the selected articles using the research questions as a guide. Data relevant to the research questions were extracted by lead author and detailed in the following Results section. The selected articles were reviewed a second time after the study team established the data items described below to assess, and relevant data were extracted from each included study.

Data Items

Key data points were extracted from each article meeting eligibility criteria, including: purpose, methods, study population, sample size, and key findings. Each study was also assessed for which of the research questions of this review it answered. These findings are organized in Table 2 and Table 3. From quantitative studies, measures used in the studies to assess dynamics of communication and contraception were also extracted. Similarly, themes of communication and contraception were extracted from the qualitative studies.

Risk of Bias in Individual Studies

To ascertain the validity of results from the selected studies, each individual study was assessed for bias. The Cochrane Risk of Bias Tool was used to guide in the assessment of bias (Higgins et al., 2011). However, because most of the components were specific to randomized controlled trials and our review included multiple study types, only the relevant criteria from the tool were used to guide in the assessment of bias. Thus, for this review we looked specifically for selection bias, reporting bias, and other bias in each study. This was done by reviewing the methods section of each study and also reviewing their limitations. Additionally, we noted elements that contributed to lower quality assessments such as studies that did not account for temporality of communication and studies that did not clearly define communication or contraception.

Summary Measures

The key findings of each study are organized in a table with the relevant data items listed above such as how communication and contraception are measured in each study, and they are described in the results section. In quantitative studies, statistical methods used and outcome measures such as odds ratio were noted. For the qualitative studies, we noted overall themes in codes as identified by the authors.

Synthesis of Results

To synthesize findings, the identified articles were each reviewed to summarize the above mentioned data points and summary measures. Furthermore, because the eligibility criteria did not limit study type and because we looked at both quantitative and qualitative studies, we used methods from systematic scoping reviews to collate and draw inferences from the selected studies. Scoping reviews are conducted to synthesize research evidence or map existing literature that may be more heterogeneous in nature or not yet comprehensively reviewed (Khalil et al., 2016; Peters et al., 2015). The original framework for scoping studies was first proposed in 2005 by Arksey and O'Malley

(2005) but remains relatively new with no definitive method; however, scoping reviews have been used to summarize and disseminate findings as well as to make recommendations (Peters et al., 2015). Recent guidelines for scoping reviews suggest the extraction and charting of data in tabular and narrative format (Khalil et al., 2016). Thus, the results section and table discuss similarities and differences in measures, themes, and findings in the context of how they relate to the research questions and describe the findings in a more narrative format in the discussion.

Chapter IV

RESULTS

A total of 15 articles were included in the review: 10 quantitative studies and five qualitative studies. Using the five databases, 1,162 records were identified. After removing duplicates using EndNote, 914 records remained. Using EndNote, records that were not journal articles were filtered out and the remaining records were screened (see Figure 1, PRISMA flow diagram, below).

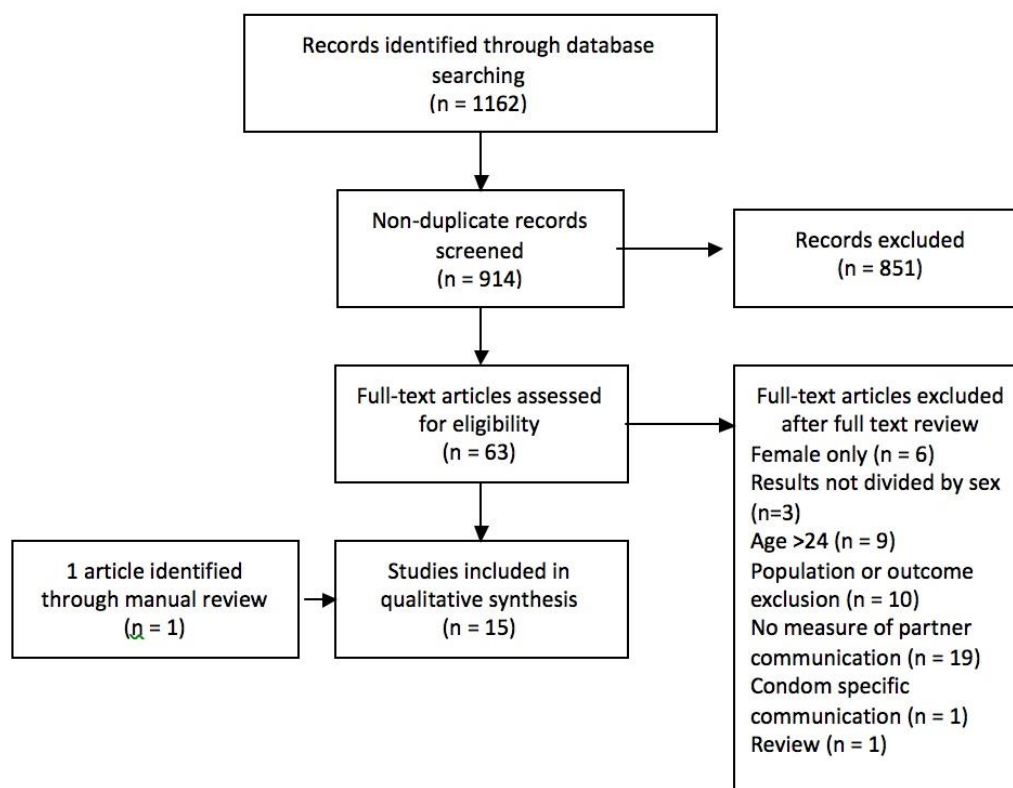


Figure 1. PRISMA Flow Diagram: Summary of Literature Search

Based on titles and abstracts or for being filtered out as not an empirical study or journal article, 851 records were excluded. Reasons for exclusion were conducted sequentially based on the PICOTS table. The primary reasons for exclusion under the population criteria were studies that focused on female populations ($n = 365$), focused on parents and providers as the population of interest ($n = 89$), or focused on young men older than 24 ($n = 36$). Other reasons for exclusion under the population criteria included studies collecting couple data with no separation of results by sex, key informant interview studies, and very specific cases such as neonaticide cases.

Under the intervention/exposure category, 197 articles were excluded for not fitting the exposure of interest, partner communication. The primary reason for exclusion was articles focused on parent or provider communication as an exposure ($n = 53$). Also, many studies focused on adolescent assets such as their relationships with their family, peers, and environment as an exposure on contraception use ($n = 32$). Other large categories that disqualified studies under this criteria included studies on understanding adolescent sources of information, media exposure, and other types of prevention programs related to videos, HIV, or other strategies ($n = 37$). Similarly, articles were excluded with individual characteristics as the dependent variable such as knowledge, attitudes, awareness, and other traits ($n = 20$).

Forty-six (46) articles were excluded due to not matching the criteria under outcomes of interest. The primary reason for exclusion under this criterion was a focus on condom use ($n = 25$). Fifty-nine (59) articles did not meet the setting criteria due to country economy, and 78 articles did not meet our study design criteria as many were not studies or not published in journal articles and had not already been filtered out by EndNote (legal opinions, fact sheets, etc.).

The remaining 63 texts were assessed for eligibility using the full texts. Among the 63 texts reviewed, 14 articles were found. The remaining articles were excluded for various reasons, including results not being split by male/female, contraception being

defined in article as condom use only, no mention of partner communication in the articles, or not meeting other eligibility criteria such as age or communication with providers or parents. A 15th article was identified through hand-searching references and added to the final analysis.

Although our original eligibility criteria for articles sought to measure articles with communication as the exposure and contraception use as the outcome, we also included articles in our analyses that had partner communication as an outcome as well as they provided answers to our other research questions such as what dynamics of communication are measured and how and when partner communication takes place.

Quantitative Studies

Sample sizes in the 10 quantitative studies ranged from 73 to 41,150. The studies included five analyses of the National Longitudinal Study of Adolescent Health (Add Health). The remaining five quantitative studies included one analysis of the 2001 Minnesota Student Survey, a questionnaire from the study of Tennessee Adolescent Romantic Relationships, a survey of college students in the southwestern region of the United States, a survey of young men attending charter schools in Chicago's South Side, and a survey of British teenagers. To measure the effect of communication (among other variables) on contraception use, four studies used odds ratios and one study used t-tests. The measurement of communication and type of communication varied by study as described below. While our inclusion criteria stated that we were primarily interested in partner communication as the exposure and contraceptive use other than condoms as the outcome, we included five studies where partner communication was the outcome. Also, our PICOTS table target age was 13-24 years, but we included a study with a participant age range of 11 to 21 (Amialchuk & Gerhardinger, 2015). Nine (9) of the studies were

conducted in the United States and one study was conducted in the United Kingdom (see Table 2 for a summary of key data points).

Participants

The participants in the selected studies varied in characteristics. Five of the quantitative studies analyzed the same pool of participants from the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative survey that collected data from adolescents in grades 7 to 12 in 132 schools in the United States. The survey was first administered in 1994 to approximately 90,000 students. A subset of 20,745 students was interviewed at home between May to December of 1995 (Wave 1). A follow-up survey was administered in April to September 1996, when 14,738 students were re-interviewed (Wave 2). The number of participants included in the analysis for each study was based on the specific aims of each and how many participants responded to data points pertaining to those aims. The sample sizes excluding the female participant data and focused on males only were $n = 596$ (Ryan, Franzetta, Manlove, & Holcombe, 2007), $n = 606$ (Manlove, Ryan, & Franzetta, 2004), $n = 1,544$ (Amialchuk & Gerhardinger, 2015), and $n = 2,826$ (Kaestle & Halpern, 2005). The fifth study using this data set used reported relationships as the unit of analysis and there were 3,387 reported by young men (Manlove, Ryan, & Franzetta, 2007).

The remaining five quantitative studies recruited participants from a particular region and ages varied. One study drew a sample of 41,150 males who were 9th and 12th graders from public schools in Minnesota where the group was predominantly white (Rock, Ireland, & Resnick, 2003). Another study's sample of participants was composed of 73 14-21 year old male-female couples that were in a relationship for at least four weeks and engaged in sexual intercourse. This paper focuses on the male participant results. This group was based in Tennessee and primarily white (Widman et al., 2006). A study in a non-specified city of the Southwest region of the United States focused on

Table 2. Quantitative Studies

Author/Year	Study Name	Location	Purpose	Methods	N	Ages	Measures of Communication	Measures of Contraception	Findings
Amialchuk, A., Gerhardinger, L. (2015).	Contraceptive use and pregnancies in adolescents' romantic relationships: role of relationship activities and parental attitudes and communication	US	Examine effects of relationship activities, parental attitudes, and communication on contraception use, consistency, and pregnancy risk	Analysis of waves 1 (1994) and 2 (1996) of ADD health	n=3717 (1544 males)	Age 11-21	"We talked about contraception or sexually transmitted diseases"	Did you or your partner use any method of birth control? (never or always) Did one or the other of you use some method of birth control every time you and your partner had intercourse?	Among males, discussing contraception and STDs with partner before having first sex increased odds of ever using contraception (OR=1.59)
Gilliam, M., Woodhams, E., Sipsma, H., Hill, B. (2017)	Perceived dual method responsibilities by relationship type among African-American male adolescents	US (Chicago)	Assess the extent to which youth feel responsible for using condom and contraception use, perceived importance of dual method use	Surveys	n=348	Age 14-19	In a committed/ casual sexual relationship, how much responsibility should a man have for... (5pt scale none-a lot) 1) Starting a conversation about birth control 2) Going with her to the clinic or pharmacy to get birth control 3) Helping decide which birth control to use 4) Paying for birth control 5) Encouraging her to use birth control 6) Making sure birth control is used during sex 7) Getting EC if needed Contraceptive behavioral intentions: "Thinking about what you think you would do in a committed/casual sexual relationship..." (YES/NO) 1) I would ask how my partner felt about condoms before using them 2) I would talk with my partner about preventing pregnancy before having sex 3) I would start a conversation about birth control if my partner didn't bring it up first	In a committed/casual sexual relationship, how important is it to use a condom even if the woman uses another method of birth control? "Very important," "Somewhat important," "Somewhat unimportant," "Very unimportant"	Young men were more likely to feel responsible for pregnancy prevention in committed versus casual relationships, and were open to using dual methods of birth control

Table 2 (continued)

Author/Year	Study Name	Location	Purpose	Methods	N	Ages	Measures of Communication	Measures of Contraception	Findings
Kaestle, C.E., Halpern, C.T. (2005)	Sexual activity among adolescents in romantic relationships with friends, acquaintances, or strangers.	US	Explore influence of pre-existing social ties between romantic adolescent partners on likelihood of intercourse, discussion of STIs or contraception, and using birth control consistently	Analysis of ADD health wave 2 data (1996)	n=6658 (2826 male)	Grades 7-12	"We talked about contraception or sexually transmitted diseases"	If they or partner used some method of birth control every time they used intercourse	Type of pre-existing social ties prior to relationship did not significantly differ odds of discussing STIs and contraception before first sex and use of contraception among males Relationship duration increased odds of communication with partners among males (OR=1.02)
Manlove, J., Ryan, S., Franzetta, K. (2004)	Contraceptive use and consistency in U.S. Teenagers' Most Recent Sexual Relationships	US	Understand factors associated with contraceptive use consistency in teenagers' most recent relationships	Analysis of waves 1 (1994) and 2 (1996) of ADD health	n=1468 (606 male)	Grades 7-12	Dichotomous variable indicating if teen and his/her partner had discussed contraception before first sex	"Did you or your partner ever use any method of birth control?" "Did one or the other of you use some method of birth control every time you and your partner had sexual intercourse?"	For males, discussing contraception before sex was associated with greater odds of ever using vs. never using (OR =1.24); always using vs. never or sometime (OR=1.17); and always using vs. sometimes (OR=1.06) None were statistically significant

Table 2 (continued)

Author/Year	Study Name	Location	Purpose	Methods	N	Ages	Measures of Communication	Measures of Contraception	Findings
Manlove, J., Ryan, S., Franzetta, K. (2007).	Contraceptive use patterns across teens' sexual relationships: the role of relationships, partners, and sexual histories	US	Examine relationship characteristics, partner attributes, and sexual health relationship histories are associated with contraception use and consistency	Analysis of waves 1 (1994) and 2 (1996) of ADD health	4383 teens, n=9,668 relationships	Grades 7-12	Dichotomous variable indicating if teen and his/her partner had discussed contraception before first sex	"Did you or your partner ever use any method of birth control?" "Did one or the other of you use some method of birth control every time you and your partner had sexual intercourse?"	For males, discussing contraception before sex was associated with greater odds of ever using vs. never using (OR=1.24); always using contraception vs. never or sometime (OR=1.17); and always using vs. sometimes (OR=1.06) None were statistically significant
Rock, E. M., Ireland, M., & Resnick, M. D. (2003)	To know that we know what we know: perceived knowledge and adolescent sexual risk behavior	US (MN)	Examine relationship between perceived knowledge about sex and adolescent sexual behaviors in 9th and 12th graders	Secondary analysis of 2001 Minnesota Student Survey	n=83,481 (41,150 male)	Age 13-20	Have you ever talked with your partners about preventing pregnancy? (Answers: at least once with every partner; never; or not with every partner)	If you have sexual intercourse, how often do you and/or your partner use any birth control method? Note: separate question for condoms	Males with low perceived knowledge of sex were more likely to report not talking with their partners about pregnancy (OR=1.43)

Table 2 (continued)

Author/Year	Study Name	Location	Purpose	Methods	N	Ages	Measures of Communication	Measures of Contraception	Findings
Ryan, S., Franzetta, K., Manlove, J., & Holcombe, E. (2007)	Adolescents' discussions about contraception or STDs with partners before first sex	US	Examine individual, family, and relationship factors that influence discussions on contraception or STDs at first sex	Analysis of waves 1 (1994) and 2 (1996) of ADD health	n= 1,426 (596 male)	Grades 7-12	"You talked about contraception or sexually transmitted diseases" and "You had sexual intercourse" Responses coded based on whether or not the discussion preceded sex	Not measured	Gender is a predictor of communication - males had a 32% lower odds than females of having discussed contraception before first sex (OR=0.7)
Stone, N., Ingham, R. (2002)	Factors affecting British teenagers' contraceptive use at first intercourse: the importance of partner communication	UK	Explore predictors of contraceptive use at first sex	1999 Survey	n=170 males	Age 16-18	The amount of discussion about contraceptive use they had with their partner before sex: not at all, sort of, a little, a lot	Used a modern method (IUD and all barrier or hormonal methods) at first sex	Discussing contraception use before sex significantly increased odds of contraception use at first intercourse: "sort of" discussing OR=5.65; "a little" discussion OR=13.8; "a lot" of discussion OR=6.13 For young men, having parents open to discussing sex, longer relationship lengths, and less social deprivation increased odds of discussing contraception before first sex

Table 2 (continued)

Author/Year	Study Name	Location	Purpose	Methods	N	Ages	Measures of Communication	Measures of Contraception	Findings
Villarreal, K. M., Wiley, D. C., Housman, J., & Martinez-Ramos, G. (2016)	Attitudes about partner communication regarding contraceptive use among Hispanic male college students	US (South-west)	Examine cultural factors that influence Hispanic male college students intentions to communicate with partners about contraception	Survey	n= 239	Mean age 22.5	<p>“If I were to discuss contraception with my sexual partners at least once during the next 3 months it would be...” (Harmful -- Beneficial);</p> <p>“For me to discuss contraception with my sexual partner(s) at least once during the next 3 months would be...” (Extremely difficult -- Extremely easy);</p> <p>“I (Definitely do not -- Definitely do) intend to discuss contraception with my sexual partner(s) at least once during the next 3 months”</p>	None	Participants with more siblings were more likely to intend to communicate with partners about contraception
Widman, L., Welsh, D.P., McNulty, J.K., Little, K.C. (2006).	Sexual communication and contraceptive use in adolescent dating couples	US (TN)	Examine relationship between sexual communication and contraceptive use; explore predictors of communication	Questionnaire - Study of Tennessee Adolescent Romantic Relationships	73 couples	Age 14-21	<p>General sexual communication (strongly disagree-strongly agree , 1-6pts):</p> <p>I freely discuss sex with my partner; I communicate to my partner when I want to try something new sexually ; I tell my partner my sexual fantasies;</p> <p>Contraceptive communication (strongly disagree-strongly agree , 1-6pts):</p> <p>My partner and I never discuss contraception</p>	<p>The first time you and your had sexual intercourse, did one of you use contraception?</p> <p>When the two of you have sexual intercourse, how often do you or your current partner use some form of contraception (never -always, 1-5 pts)</p>	General sexual communication positively predicted contraception use for males: t(68)=2.21

239 young men of at least 18 years with a sample average of 22 years but no specified upper limit. These participants had to self-identify as Hispanic or Latino and be enrolled in at least one college course (Villarreal, Wiley, Housman, & Martinez-Ramos, 2016). Another study conducted in the South Side of Chicago had survey respondents consisting of 348 African-American males aged 14-19 years (Gilliam et al., 2017). One study was conducted in England and Wales with a sample of 170 sexually active males, mostly white, and evenly distributed among socioeconomic status groups (Stone & Ingham, 2002).

Measures of Communication

This review looked specifically for measures of communication that focused on pregnancy prevention or contraception other than condoms. In the studies analyzing Add Health data, communication was measured with a statement to establish if partners “talked about contraception or sexually transmitted diseases” (Amialchuk & Gerhardinger, 2015; Kaestle & Halpern, 2005). The other three studies analyzing Add Health measured the same variable with a temporal aspect of whether or not the talking about contraception and STDs with a partner happened before having sex for the first time (Manlove et al., 2004, 2007; Ryan et al., 2007).

Other measurements of communication included asking participants the “amount of discussion about contraceptive use they had had with their partner before sex” with answer choices of “not at all,” “sort of,” “a little,” or “a lot” (Stone & Ingham, 2002). Another assessment labeled communication behaviors as high or low risk by asking participants, “Have you talked with your partner(s) about preventing pregnancy?” with possible responses “at least once with every partner” (low risk) and “never” or “not with every partner” (high risk) (Rock et al., 2003). Partner communication types or topics were also explored such as contraceptive-specific communication and general sex communication. Measures included statements such as “I freely discuss sex with my

partner”, “I communicate with my partner when I want to try something new sexually,” and “I tell my partner my sexual fantasies” (general sexual communication) and “My partner and I never discuss contraception” (contraceptive-specific communication) with six-point scales ranging from strongly disagree to agree (Widman et al., 2006).

The final two quantitative studies measured communication attitudes and intentions rather than actual communication. For example, participants responded to the following statements using seven-point scales in parenthesis after or embedded in each: “If I were to discuss contraception with my sexual partners at least once during the next 3 months it would be...” (Harmful -- Beneficial); “People who are important to me would... (Not Approve -- Approve) of me discussing contraception with my sexual partner(s) at least once during the next 3 months”; “For me to discuss contraception with my sexual partner(s) at least once during the next 3 months would be...” (Extremely difficult -- Extremely easy); “I Definitely do not -- Definitely do) intend to discuss contraception with my sexual partner(s) at least once during the next 3 months” (Villarreal et al., 2016). Contraceptive behavioral intentions were also explored with yes or no questions by asking a stem statement (“Thinking about what you think you would do in a committed/casual relationship...”) completed by the following statements: I would ask how my partner felt about condoms before using them; I would tell my partner how many people I have had sex with; I would talk with my partner about pregnancy prevention before having sex; I would start a conversation about birth control if my partner didn’t bring it up first (Gilliam et al., 2017).

Similarly, intentions related to communication were measured as indicators of contraceptive responsibility (Gilliam et al., 2017). Participants were given the statement, “In a committed/casual sexual relationship, how much responsibility should a man have for...” and participants ranked their responses using a five-point scale ranging from “none” to “a lot” based on the following items: starting a conversation about birth control, helping decide which birth control to use, encouraging her to use birth control,

making sure birth control is used during sex, getting EC after sex, if needed. The measure added several items that were not related to communication.

Measures of Contraception

Contraception use measures ranged in timing with studies exploring if participants ever used contraception, consistently used contraception, or used contraception at first sex. Three articles analyzing Add Health data used measures of having ever used a method of birth control with the statement, “Did you or your partner ever use any method of birth control?” with bivariate analysis comparing participants who “never used” versus “ever used at any point in the relationship” (Amialchuk & Gerhardinger, 2015; Manlove et al., 2004, 2007).

Several studies using the same Add Health data set included measures of contraception consistency with the statement, “Did one or the other of you use some method of birth control every time you and your partner had intercourse?” with participant responses indicating whether they “always used” or “sometimes used” contraception during intercourse (Amialchuk & Gerhardinger, 2015; Manlove et al., 2004, 2007). Other measures of consistency of contraception use included five-point scale responses of Always to Never to questions like “If you have sexual intercourse, how often do you and/or your partner use any birth control method?” scale (Rock et al., 2003) and “When the two of you have sexual intercourse, how often do you or your current partner use some form of contraception?” (Widman et al., 2006).

Studies also assessed whether or not contraception use used the first time young men had sexual intercourse with measures such as “The first time you and your current partner had sexual intercourse, did one of you use contraception?” (Widman et al., 2006). Likewise, Stone and Ingham (2002) asked if participants used a modern method of contraception “at first sex.”

Specific measures of particular methods of contraception were not always fully delineated and included “some form of contraception” (Widman et al., 2006); “modern method” defined as IUD and all barrier and hormonal methods (Stone & Ingham, 2002); and Add Health data of “any method of birth control” (Amialchuk & Gerhardinger, 2015; Manlove et al., 2004, 2007). In one study assessing if the participants used “any birth control method,” there was a separate question for condom use implying to the author that condoms did not fall under “birth control” (Rock et al., 2003).

Also of note, in a study assessing perceptions of dual methods of contraception, participants were asked about their attitudes of the importance of using a condom even if the woman uses another method of birth control with a four-point scale from “Very Important” to “Very unimportant” (Gilliam, Woodhams, Sispma, & Hill, 2017).

Qualitative Studies

Sample sizes in the five qualitative studies ranged from 8 (Schooler, Impett, Hirschman, & Bonem, 2008) to 40 (Buston, 2010). Study designs included semi-structured interviews, in-depth interviews and focus groups. The ages of participants ranged from 16-20 years across the studies. Two of the studies took place in the United States, two in the United Kingdom, and one in Sweden. These studies provide insight into the research questions of interest here, including whether or not partner communication is associated with contraception use but also what young men discuss with partners, when they discuss, and how they discuss sexual health with partners. Participants and themes of communication and contraception will be described below (see Table 3 for a summary of key data points).

Table 3. Qualitative Studies

Author/Year	Study Name	Location	Purpose	Methods	N	Ages	Themes of Communication	Themes of Contraception	Findings
Brown, K. E., Arden, M. A., & Hurst, K. M. (2007)	A qualitative analysis of accounts of hormonal contraceptive use: Experiences and beliefs of British adolescents	UK	Explore beliefs, attitudes, and experiences of using hormonal contraceptive methods	Interviews	n=16 (5 male)	Age 16-18	Issues of communication and trust Communication also discussed under "Negative Experiences)	Negative experiences (with contraception) Experiences unrelated to pregnancy prevention Mistrust of the pill Risk reduction Perceptions of pill promotion by adults	Discussions with female partners can lead to stopping use of the pill; discussions with female partners can lead to obtaining emergency contraception
Buston, K. M. (2010)	Experiences of, and attitudes towards, pregnancy and fatherhood amongst incarcerated young male offenders: findings from a qualitative study	UK	Examine experiences of and attitudes toward pregnancy and fatherhood amongst incarcerated young men	In-depth interviews	n=40	Age 16-21	No themes identified by author Examples of communication discussed under "Repeat Procreators"	No themes identified by author Examples of contraception discussed under "Repeat Procreators"	Males describe checking in with female partners to ensure regular use of pill to prevent repeat pregnancy; alcohol or marijuana may be a barrier
Ekstrand, M., Tyden, T., & Larsson, M. (2011)	Exposing oneself and one's partner to sexual risk-taking as perceived by young Swedish men who requested a Chlamydia test	Sweden	Explore perceptions of risks of unprotected sex among young men and their partners and barriers to safe sex	Interviews	n=22	Age 16-20	Difficulties in communication - a barrier to safe sex	Oral contraception - a barrier to condom use	Perceived barriers to safer sex: mentioning contraceptive use before sex perceived as an interruption in which female partners may decide not to have sex; young men would rather let female partners take responsibility for prevention

Table 3 (continued)

Author/Year	Study Name	Location	Purpose	Methods	N	Ages	Themes of Communication	Themes of Contraception	Findings
Galloway, C. T. (2014)	Exploring African American and White 18-19 year old males' communication experiences with their parents and partners about sex and contraception	US (SC)	Explore experiences of sexual risk communication with partners and differences between African Americans and white males	Focus Groups	n=30	Age 18-19	Partner communication about sex and contraception: type of relationship (casual, serious partner)	Male's role in the use of contraception: shared responsibility, mistrust of partners to use contraception, contraception does not always work	When young men discuss with partners depends on relationship, prompted by something like music or TV; how young men talk about it: casual, short, brief statements (i.e. "you're good right?")
Schooler, D., Impett, E.A., Hirschman, C. Bonem, L. (2008)	A mixed-method exploration of body image and sexual health among adolescent boys	US (North-east)	Examine associations between body image and sexual health	Study 1 - semi-structured interviews Study 2 - survey	Study 1 n=8; Study 2 n=149	Age 17-18	"There is just so much to talk about:" communicating with sexual partners (examples: nonverbal cues, verbal cues, avoiding, hesitating)	"You gotta use it:" using protection (examples: never using, condoms and contraception, delayed discussions)	Both verbal and nonverbal cues are used; young men with low body satisfaction reported less communication compared to young men with high body satisfaction

Participants

The participants in the qualitative studies identified were ages 16-20. Two of the studies took place in the United States. One took place in the Columbia community in South Carolina with a sample size of 30 18-19 year old males (14 African-American and 16 White) (Galloway, 2014). The other U.S.-based study worked with eight 12th grade students from a northeastern urban school district. Seven of the participants were White, and one was Vietnamese-American (Schooler et al., 2008). Two studies took place in the United Kingdom. One conducted focus groups with 16 students (five male, and all White), ages 16-18 years, from a college north of England (Brown, Arden, & Hurst, 2007). The other study conducted interviews with 40 inmates in a low-risk Scottish Young Offender Institute with participants ages 16-20 and race or ethnicity not specified (Buston, 2010). Lastly, one study took place in Sweden at a youth clinic where 22 young men ages 16-20 presented for Chlamydia screening (Ekstrand, Tyden, & Larsson, 2011). In this study, 20 of the young men were of Nordic origin and the remaining two identified as other.

Themes of Communication

Several themes of communication emerged from the qualitative studies. Three of the articles had themes related to communication specified by the authors, while the other two studies had mentions of communication by the participants though not an explicit theme created by the author. Findings from each theme will be further elaborated in the following section.

Studies with participants describing partner trust included themes such as “Issues of Communication and Trust” (Brown et al., 2007) where participants described experiences such as feeling unable to verify if a female partner is using a method consistently and “Partner Communication about Sex and Contraception” where young

men detailed how trust can lead to more in-depth conversations with partners (Galloway, 2014).

Discussions of hesitation in and avoidance of communicating about contraception with female partners were captured under themes like “Difficulties in communication—a barrier to safe sex” where participants reported finding it difficult to talk to their partners about safe sex (Ekstrand et al., 2011). Similar findings were described in “There is just so much to talk about: Communicating with sexual partners” (Schooler et al., 2008), which covered topics of nonverbal cues, verbal cues, avoiding, and hesitating with communication about safe sex.

Although not explicitly stated as themes by the authors, the remaining qualitative studies evoked responses related to communication. These responses included actual actions taken toward decision-making such as reminding partners to take a method or discussing whether or not a partner should discontinue a method. Experiences of communication were evoked under the theme “Negative Experiences” (in regard to hormonal birth control use) (where one extract states, “I said she could come off it [the pill] whenever she wanted, if she thought she was putting on weight or anything like that...,” Brown et al., 2007). Likewise, communication is mentioned in interviews with the inmates in Scotland under the author’s theme, “Repeat Procreators,” as the young men describe how they would ensure their partners were using a method to avoid repeat pregnancies. For example, the author states that one participant “said that he did check regularly that his later girlfriend was remembering to take the pill” but that with other partners he was able to recount times “where he did not use a condom, or ask them if they were using contraception” (Buston, 2010).

Themes of Contraception

Themes of contraception also emerged from the articles in this review with common themes across the studies. Topics such as not trusting the efficacy or being wary

of side effects of hormonal birth control were discussed under themes of “Negative Experiences” and “Mistrust of the Pill” (Brown et al., 2007) as well as “Contraception does not always work” (Galloway, 2014). Topics regarding partner dynamics of trust and responsibility emerged under themes such as “Males Role in the Use of Contraception” with sub-themes of “Shared Responsibility” and “Mistrust of Partners to Use Contraception” where participants discussed young men’s participation in dual method use and concerns about partners incorrectly or not using contraception (Galloway, 2014). Likewise two participants described ambivalence to contraceptive responsibility under the theme under “Repeat Procreators” (Buston, 2010) and one participant described how he would defer responsibility to his female partner under the theme “Oral Contraception—a Barrier to Condom Use” (Ekstrand et al., 2011). Similarly, one participant discussed never using condoms as a result of female use of hormonal methods (even when partner use is inconsistent) under the theme “‘You Gotta Use It’: Using Protection,” which also described participants’ experiences in conversations regarding birth control (Schooler et al., 2008).

Findings

This section discusses the findings across both quantitative and qualitative studies identified in the systematic review. It will begin by discussing how communication affected contraception use by describing associations between partner communication and contraception use in quantitative studies as well as descriptions of actions related to communication that affected contraception use as identified in qualitative studies. Next, this section will describe factors associated with partner communication and describe strategies and timing of partner communication.

Associations and Actions Affecting Contraception Use

Five quantitative studies explored the effect of communication on contraception use, and three qualitative studies provided examples of how male partner communication can lead to outcomes of female contraception use. Stone and Ingham (2002) found that discussing contraception use before sex significantly increased the odds of contraception use at first intercourse at varying amounts. Compared to not discussing contraception at all, “sort of” discussing had an odds ratio of 5.65, “a little” discussion had an odds ratio of 13.8, and “a lot” of discussion had an odds ratio of 6.13 for using a modern method of contraception at first sex. Likewise, when comparing general sexual communication and contraceptive-specific communication among couples, regression analysis demonstrated that general sexual health communication predicted contraception use for males, $t(68) = 2.21$ (Widman, Welsh, McNulty, & Little, 2006). This positive relationship persisted for young men when controlling for contraceptive-specific communication.

In one analysis of Add Health, findings indicated that among males, talking with a partner about contraception or STDs significantly increased the odds of having ever used contraception versus never using contraception (1.59), but there were no statistically significant findings regarding consistency (Amialchuk & Gerhardinger, 2015). Additionally, no statistically significant relationship was found between communication before sex and ever using or consistently using in two other analyses of Add Health (Manlove et al., 2004; 2007).

Narratives of how communication may affect use of contraception other than condoms by a female partner included one male interviewee’s description of his role in contraceptive decisions with his partner, in which he told her she could go off the pill if she felt there were negative effects such as weight gain (Brown et al., 2007). Another participant stated that he did not know his partner had been inconsistently taking her hormonal birth control pill for about a week and the couple discussed it after they had had sex. The couple used emergency contraception as a result (Brown et al., 2007). Similarly,

in the study interviewing inmates in Scotland, two of the participants described how they communicated with their female partners regarding birth control in an effort to avoid repeat procreation. One young man stated that his female partner made it clear she was taking the pill every day indicating that there was some sort of communication between the two. Another young man stated that he checked regularly with his girlfriend to make sure she remembered to take the pill (Buston, 2010). A similar example of checking on method use was described under a theme of mistrust of partners where one young man stated that if his partner reports taking the pill he may ask to “see the little prescription to make sure you know just in case ... let me see [she] on the right day” indicating he checked her pills and timing (Galloway, 2014).

Factors Associated with Partner Communication

Five quantitative studies and four qualitative studies identified factors that were associated with partner communication. Analysis of Add Health data found that gender was associated with discussion of contraception or STDs before sex with young men having 32% lower odds of discussing contraception or STDs with their first sexual partner compared to young women with an odds ratio of 0.7 (Ryan et al., 2007). Other factors influencing communication included knowledge about sex. Males with low perceived knowledge of sex were more likely to report not talking with their partners about pregnancy with an odds ratio of 1.43 (Rock et al., 2003). Other factors associated with likelihood of communication or intention to communicate included the number of siblings, (Villarreal et al., 2016), parents’ increased openness to discussing sex, and living in a neighborhood with less social deprivation (Stone & Ingham, 2002).

Relationship factors such as length, category (committed or casual), and pre-existing social ties before dating were also assessed. An analysis of Add Health data found that for young men, longer durations of relationships was associated with talking about contraception or STDs with a statistically significant odds ratio of 1.02, but

knowing a partner before a relationship did not significantly affect the odds of communication (Kaestle & Halpern, 2005). Among young men in Stone and Ingham's (2002) study, the odds of discussing contraception were eight times higher among young men who had been in a relationship for 5-12 weeks compared to those who knew their partner only one day before having sex. In assessing relationship type, Gilliam et al. (2017) found 71% of young men reported that both partners in casual relationships were responsible in pregnancy prevention activities such as going with a partner to get birth control, encouraging her to get birth control, and making sure it is used during sex. Similarly, 88% of young men felt that both were responsible in committed relationships for the same activities. Although not quantified, Galloway's (2014) study also found that there might be brief or no conversation about sex and communication with partners in casual relationships, but more in-depth conversation in serious relationships.

Responsibility was also a common theme across the articles, and attitudes of responsibility may also affect the likelihood of communication. Interviews with the young men in South Carolina, for example, illustrated that young men felt that they shared a responsibility and played a role in the use of contraception. In their responses, dual method use was suggested when interviewees stated that young women can do "their" part such as being on a hormonal method like the pill or shot while boys wear a condom (Galloway, 2014). On the other hand, interviews with the Scottish inmates and the Swedish young men presenting for Chlamydia testing provided several examples of how young men may feel that it is not a shared responsibility. For instance, the two young men avoiding repeat procreation in Scotland reported rare condom use and said they were leaving contraception up to their female partners. One young man stated that especially under the influence of alcohol or marijuana, he does not think about contraception (Buston, 2010). Likewise, in the Swedish study, one young man stated that if a partner was on a hormonal method, he would let the girl take on the responsibility

and not initiate condom use, and unintended pregnancy was viewed primarily as an issue for young women especially in casual relationships (Ekstrand et al., 2011).

Strategies and Timing of Partner Communication

The qualitative studies provided examples of when and how young men communicate with their female partners in regard to issues of pregnancy prevention and contraception. In the Swedish study, interviews highlighted that participants found it difficult to discuss safe sex with their partners until it actually took place. One participant felt that discussing contraceptive use before having sex could interrupt the moment and cause the female partner to have second thoughts (Ekstrand et al., 2011). Likewise, in their comparison of young men and how body image affects sexual health, Schooler et al. (2008) found that among boys with low body satisfaction, sexual communication was also avoided with their partners to avoid rejection. Two of the boys with low satisfaction were sexually active and they reported inconsistent or delayed communication with their partners. Conversely, the boys with higher body satisfaction also experienced hesitation before communicating with their female partners, but ultimately reported speaking with partners frequently and openly about condoms and contraception with three participants reporting that conversations took place before sex (Schooler et al., 2008).

Finally, two of the studies provided specific examples of strategies and utilization of prompts to initiate partner communication among young men. For example, in the study of body image and sexual health, young men provided examples of nonverbal cues for communication such as hands touching hands, kissing, not being pushed away by their female partner, or the female partner moving their hand away (Schooler et al., 2008). Some verbal communication examples were if the female told the male “stop” or “no” (Schooler et al., 2008). Other verbal cues used were in the form of brief statements such as “you’re good right?” in casual relationships but more in-depth about birth control and plans for birth control when in a serious relationship (Galloway, 2014). One

participant stated that watching a TV show or movie or hearing a song could prompt a discussion of sex and contraception. Two participants described more direct communication such as asking or being told by their female partners about using the hormonal birth control pill (Galloway, 2014).

Potential Sources of Bias

Each study was assessed for potential sources of bias. Due to the sensitive nature of the topic of sexual health, many of the studies are at risk for reporting bias. In both the quantitative and qualitative studies, the self-reporting by young men of behaviors related to sexual intercourse, partner communication, and contraception use all introduce potential sources of bias. Furthermore, in qualitative studies, participants may be more likely to provide socially desirable responses both due to the presence of the researcher but also in situations with focus groups. Additionally, recall bias may affect data especially in studies where participants have to remember details of past relationships.

Furthermore, in the qualitative studies, there is risk of bias in the coding and reporting of the findings. Interpretation of qualitative findings may be biased by the researcher when focused on specific topics of interest. Not all relevant information may be reported as a result. Also, many studies recognized selection bias. For example, in Ekstrand et al.'s (2011) study, the young men interviewed were presenting for Chlamydia testing suggesting that they may have practiced a risky sexual behavior, but also that they were already seeking care. This affects the generalizability of the findings.

Chapter V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This systematic review identified studies addressing male partner communication in regards to contraception use and pregnancy prevention. The studies provide insight and answers to our research questions, but there are some conflicting findings in part due to differences in samples, analyses, and measurement. Overall, the systematic review suggests that male partner communication is an area that is understudied but has the potential to exact behaviors of contraception use other than condoms. We expand on the findings from the results below and address strengths, limitations, and potential areas for future research.

Associations between Partner Communication and Contraception Use

This systematic review provides support that young men's communication with female partners may be associated with increased contraception use, but more research should be done to confirm. Only five quantitative studies measured any relationship between partner communication and contraception use among young men and only three found a statistically significant positive relationship (Amialchuk & Gerhardinger, 2015; Stone & Ingham, 2002; Widman et al., 2006).

Of the five, three studies analyzed Add Health data, but only one found a statistically significant relationship. In participants' most recent relationship, partner communication significantly increased the odds of ever using contraception (Amialchuk

& Gerhardinger, 2015), but consistent use was not significant among any of the other three studies measuring consistency from the same dataset (Amialchuk & Gerhardinger, 2015; Manlove et al., 2004, 2007). This may be due in part to sampling and measuring differences such as assessing most recent relationships (Amialchuk & Gerhardinger, 2015) versus assessing multiple romantic relationships per participant (Manlove et al., 2007). Furthermore reasons for excluding participants differed such as incomplete data (Amialchuk & Gerhardinger, 2015) and exclusions based on past sexual and relationship histories (Manlove et al., 2004). Also of note, while both articles by Manlove et al. (2004, 2007) included “before first sex” in their measure of communication, Amialchuk and Gerhardinger (2015) did not.

However, Stone and Ingham (2002) found that male partner discussion of contraception significantly increases the odds of contraception use at varying amounts including “sort of,” “a little,” and “a lot.” Similarly, Widman and colleagues (2006) found that varying topics of general sexual communication correlate with contraception use. Both studies were conducted specifically to assess communication whereas the three Add Health studies assessed multiple factors with communication only being one measure. Consistent with studies in Chapter II assessing condom use and young women’s self-report of contraception use, these studies found that multiple approaches to communication are helpful in obtaining contraception use other than condoms.

Furthermore, qualitative evidence from Brown et al. (2007), Buston (2010), and Galloway (2014) elaborate on specific ways young men communicate with their partners in contraceptive decision-making through participant narratives. Though there were only several narratives that touched on the topic specifically, two males demonstrated that partners discussing concerns such as negative effects of hormonal birth control could lead to a joint decision to stopping the use of the pill. The third male narrative described how after unprotected sex, the couple made a joint decision to use emergency contraception. Examples also illustrated how young men can provide reminders to ensure a partner uses

a method consistently. Although two of these examples led to nonuse of a method, it illustrates young men's ability to influence their female partners' decisions or how they can be supportive when their female partners are concerned about negative effects of hormonal methods. These examples also identify issues of mistrust in the cases where the young men feel the need to examine prescriptions thereby stressing the importance of finding ways to communicate and without overstepping and being coercive.

Predictors of Partner Communication

While predictors of partner communication were not an initial interest of this systematic review, identified studies from the review with communication as an outcome were included as they provided examples of measurement of communication. Relationship characteristics such as length of relationship, pre-existing social ties, and type such as casual versus serious could influence partner communication (Galloway, 2014; Kaestle & Halpern, 2005; Stone & Ingham, 2002). These findings are consistent with articles not included in the review due to the age range but also suggest how level of commitment is correlated with likelihood of discussing pregnancy prevention with female partners (Catalozzi et al., 2013; Garbers et al., 2017; Merkh et al., 2009; Raine et al., 2010).

Other factors that were noted as potential predictors of partner communication included the level of parents' communication with young men (Stone & Ingham, 2002) and having siblings (Villarreal et al., 2016). This suggests that other relationships may be important for a young man to be able to communicate with their female partners. Parents and siblings as well as other peers may be individual assets that can influence one's ability to communicate with partners and should be explored further.

Additionally, barriers to communication were identified including low-perceived knowledge about sex (Rock et al., 2003), low body satisfaction and self-image (Schooler

et al., 2008), and social deprivation (Stone & Ingham, 2002). In the smaller samples with qualitative analysis, some young men also identified not wanting to interrupt sexual intercourse by discussing contraception with a female partner as the female may have second thoughts (Ekstrand et al., 2011). One young man also stated that being under the influence of alcohol or marijuana was also a barrier to partner communication (Buston, 2010). These examples of barriers suggest the need to further explore what may prevent young men from communicating with their partners and how these situations can be mitigated and prepared for in advance.

How Young Men Communicate with Partners

Furthermore, the studies gave insight to how young men talk to their partners, what topics are discussed, and when they talk to their partners. Examples cited in the qualitative studies included discussions with female partners about pill use, reminders, maintenance, and negative effects (Brown et al., 2007; Buston, 2010; Galloway, 2014). The studies also suggested that communication could take many forms from being specific to contraception and STDs to being more general toward other sex topics. This communication could be verbal, non-verbal or short simple phrases (Buston, 2010; Galloway, 2014; Schooler et al., 2008). Other studies also described timing of communication. While most of the studies suggest that communication took place prior to sexual intercourse, studies also found that discussions afterwards could prompt the joint decision between partners to use emergency contraception. Also, if a female partner had already been pregnant, this may also promote future discussions to avoid repeat pregnancies. One study also found that partner communication could be triggered when spending time with partner and a television show or song's themes prompted such a discussion. Thus, partner communication can take many forms, but as suggested by Stone and Ingham's (2002) study, even a little bit of discussion can make a difference, and it is

important to recognize the different prompts and different styles that can facilitate partner discussion.

Measuring Communication and Contraception

Contraception measures are not always clearly defined, and when they are, they may not be inclusive of all methods. Some definitions of contraception grouped together hormonal and barrier methods, and another study measured perceived importance of contraception use. Some studies measured contraception use in terms of consistency, use at first sex, use at last sex, or ever using. Thus, it is difficult to draw major inferences, as there were slight differences among the studies in how contraception use was operationalized and measured.

Communication measures also varied with some measurements including “ever” and others including temporal measures such as “before” sex. Other measures included the amount of communication that took place using arbitrary terms such as “a lot” or “a little.” Values were assigned to measures of communication in other studies such as classifying talking to a partner “at least once” as a low-risk behavior. In Widman and colleagues’ (2006) study, there was only one measure of contraceptive-specific contraception versus three measures of general sexual communication. Other studies focused on communication intentions rather than directly measuring reported behavior.

The differences in measures of both communication and contraception highlight the need for valid measures of each. Furthermore, as some studies have measures for both contraception use and communication but do not analyze the two against each other, it illustrates how the relationship between the two is not always an outcome of interest in past research. Likewise, communication was not the main focus of many of the studies that we identified as they only had one measure of communication or there were limited data points related to communication in their analyses.

Strengths and Limitations

This is the first systematic review that we know to date that focuses specifically on young men in regards to partner communication and contraception use other than condoms. Each step of the systematic review closely followed the PRISMA guidelines and PICOTS eligibility criteria, thus making the search strategy reproducible. Furthermore, any deviations such as the decision to include a study with participants under the age lower limit and the decision to explore studies with communication as the outcome were documented in the methods and results. This review highlights the need for future research and the need for precise measurements of communication and contraception use to better establish associations.

Despite the notable strengths, there are some limitations to this systematic review. First, due to the small number of articles, it is difficult to draw inferences on any causal relationship between male partner communication and contraception use. Furthermore, of the 15 selected articles, only three quantitative studies demonstrated a statistically significant positive relationship while only three qualitative studies provided narratives demonstrating exact examples of how it would be operationalized in a relationship. Also, it is difficult to draw conclusions from qualitative studies with small samples and some of the responses we chose were from an even smaller subset within each individual study's sample. Additionally, there was no uniform measurement or definition of contraception or partner communication. Because our search strategy and terms were tailored to communication as the exposure with contraception use as an outcome, we may have missed articles that answered our additional research questions of communication measurement and what males discuss, how, and when these discussions occur.

Conclusions

Past research has shown that young men do not desire pregnancy (Frost, Singh, & Finer, 2007; Raine et al., 2010) and that their knowledge and attitudes in prevention methods can be improved. Like the Information-Motivation-Behavioral skills model suggests, these characteristics of motivation and information are able to exact change toward safer sex behaviors, but research has suggested that consistent contraception use is still lacking. Thus, developing partner communication skills among young men can be beneficial for preventing pregnancy. Previous studies on condom negotiation and female reports of contraception use have found a positive association with communication. Thus, male partner communication has the potential to exact change in contraception use as, in theory, it fits within the IMB parameters. Obviously, issues of relationship context and female autonomy come in to play as the behaviors of contraception use are not within the direct control of young men. It is therefore important to guide young men in communication to help make decisions with their female partners in ways that are responsible without being coercive.

In conclusion, the evidence from this systematic review suggest that involving young men in decisions related to contraception other than condoms may be beneficial for those wanting to prevent pregnancy. Male partner communication was associated with increased contraception use in three studies and provides support for this potential area if future studies can be conducted to corroborate. Although male-controlled methods like condoms and withdrawal have been widely used by young men (Abma & Martinez, 2017), if they are not used correctly or consistently it may be beneficial for female partners to be on consistently used hormonal contraceptive methods or for both individuals to utilize dual methods of contraception. Young men can contribute further in pregnancy prevention efforts by expanding their role beyond male-centered forms of

contraception and one way of doing so is to communicate with their female partners about other contraceptive methods that are not in their control.

Recommendations for Future Research

The small number of articles discussing male partner communication on contraception use illustrates how this is an understudied area. Many articles were ruled out due to their focus on communication with parents or peers and many more ruled out because of their focus on condom use. Future studies can further explore the association between communication and contraception use. In doing so, it would be helpful to clarify definitions and measures of contraception as many studies often measured contraception as condom use only among young men. In measuring communication, assessments should define timing of the communication and amount of communication. In measuring contraception, assessments should specify exact methods and include measures of consistency.

Pregnancy prevention efforts should include young men and build their communication skills with female partners. Future qualitative research can further flesh out the topics young men discuss with their female partners and explore issues of timing of conversations. Additional information can be captured on the modalities used especially with social media and cell phones being more prominent.

Finally, while this review was open to studies exploring young adolescent men in general, it is important to also explore how disparities in health among different groups of young men affect partner communication and contraception use. Other than the Add Health data analyses, many of the participants in the 15 studies were White. Furthermore, there were very few qualitative studies that have been reported in the United States and again, the populations were not very diverse. As more information is obtained about the

role of young men in partner communication and pregnancy prevention, efforts should be tailored to address these disparities.

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